GRUNDIG VS-8250

MODEL

SERVICE MANUAL

CCD-F375E
RMT-506

SERVICE MANUAL

AEP Model
UK Model
Australian Model

Remote commander is available as a unit, but as individual parts the battery case lid of commander is only available.

Handycam
Video 8

For MECHANICAL ADJUSTMENTS, refer to the "8mm Video MECHANICAL ADJUSTMENT MANUAL III (U MECHANISM)" (9-972-732-11)

SPECIFICATIONS

System

Video recording system	Rotary two heads, Helical scanning FM system
Audio recording system	Rotary head, FM system
Video signal	PAL colour, CCIR standards
Usable cassette	8 mm video format cassette
Tape speed	SP: Approx. 20.051 mm/sec. LP: Approx. 10.058 mm/sec.
Recording/Playback time	SP mode: 1 hour 30 min. (P5-90) LP mode: 3 hours (P5-90)
Fast forward/rewind time	Approx. 6 min. 30 sec. (P5-90)
Image device	CCD (Charge Coupled Device)
Viewfinder	Electronic viewfinder (black and white)
Lens	Combined 8 × power zoom lens f=8.5 to 68 mm. F 1.6 with macro Filter diameter: 46 mm
Auto focus system	TTL
Colour temperature	AUTO, HOLD ☼ INDOOR 3,200 K ☀ OUTDOOR 5,800 K
Minimum illumination	3 lux (F 2.0)
Illumination range	3 lux to 100,000 lux (0.3 to 9,294 footcandles)
Recommended illumination	More than 100 lux (9 footcandles)
Aperture correction	Automatic With back light adjustment

Input and output connector

Video output	Phono jack (1), 1 Vp-p, 75 ohms unbalanced, sync negative
Audio output	Phono jack (1), −7.5 dBs, (at output impedance less than 1 kilohms)
RFU DC OUT	Special minijack (1), 5 V DC
Earphone jack	Minijack (1), 8-ohm impedance
Remote jack	Stereo mini-minijack (1)

– continued on next page –

MICROFILM

8 VIDEO CAMERA RECORDER
SONY®

General

Power requirements	On battery mounting surface 6.0 V (battery pack) 7.5 V (AC power adaptor) 9.0 V (alkaline batteries)
Power consumption	6.2 W (camera recording) including the viewfinder
Installation	Vertically,horizontally
Operating temperature	0°C to 40°C
Storage temperature	-20°C to +60°C
Dimensions	Approx. 111 × 139 × 321 mm (w/h/d)
Weight	Approx. 1.1 kg excluding the battery and cassette
Microphone	Electret condenser microphone, uni-directional monaural type

Wireless Remote Commander RMT-506

Remote control system	Infrared control
Command mode	VTR2
Power requirements	3VDC, 2 R6 (size AA) batteries
Dimensions	Approx. 60 × 25 × 123 mm (w/h/d)

Design and specifications are subject to change without notice.

Supplied Accessories

The camcorder is packed together with the following units. Check to see that everything is contained in the package. (* Attached to the camcorder)

- Remote Commander RMT-506 (1)
- R6 (size AA) battery for Remote Commander (2)
- Battery pack NP-66 (1)
- AC power adaptor AC-V60A (1)
- Lithium battery CR2025 (1)
- RFU adaptor RFU-90E or RFU-89EA (1)
  With the RFU-89EA, an aerial selector and a screwdriver are supplied.
- Shoulder strap (1)
- Lens cap (1)*
- Cassette tape (1)

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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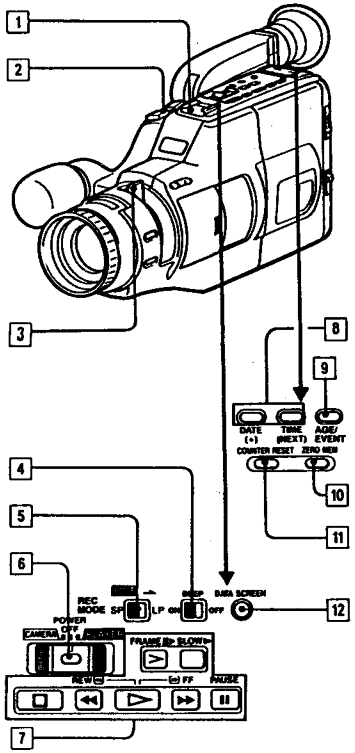
The color reproduction standard frame is contained after the camera adjustments.

SECTION 1
GENERAL

This section is extracted from instruction manual of AEP/UK model.

Identifying the Parts

(A-1)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12
DATE (+)
TIME (NEXT)
AGE/EVENT
COUNTER RESET
ZERO MEM
REC MODE
SP
LP
POWER
CAMERA
OFF
PLAYER
BEEP
ON
OFF
DATA SCREEN
FRAME
SLOW
REW
FF
PAUSE

For details on the use of each control, refer to the pages indicated in the circle.

(A-1)

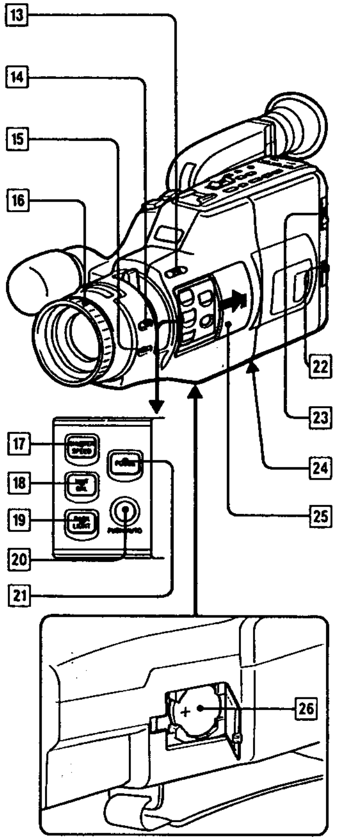
1. **Accessory shoe**
   Attach a video light, external microphone, etc. (not supplied).
2. **POWER zoom button** ㉟
3. **Zoom lever** ㉟
4. **BEEP switch** ㉑ ㉒
   Normally set to "ON" to activate the recording start/stop beeps and the warning beeps.
   To deactivate the beeps, set the switch to "OFF".
5. **REC MODE (recording mode)/EDIT switch** ㉑ ㊿

Switch it depending on the operating mode.

Mode	Recording	Playback	Editing
Setting	SP LP		
Function	Recording mode switch	EDIT switch	

6. **POWER switch**
   CAMERA: for camera recording
   PLAYER: for playing back or editing tapes
   OFF: power off
7. **Tape transport buttons** ㊻ ㊼
   >/II ► FRAME (forward direction/frame-by-frame in forward direction)
   I► SLOW
   □ (stop)
   ◄◄ REW (rewind)
   ▷ (playback)
   ►► FF (fast forward)
   II PAUSE
8. **DATE (+) and TIME (NEXT) buttons** ⑱
9. **AGE/EVENT button** ㊴
10. **ZERO MEM (zero memory) button** ㉖ ㊾
11. **COUNTER RESET button** ㉖ ㊾
12. **DATA SCREEN button** ㊻

(A-2)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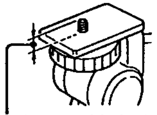
(A-2)

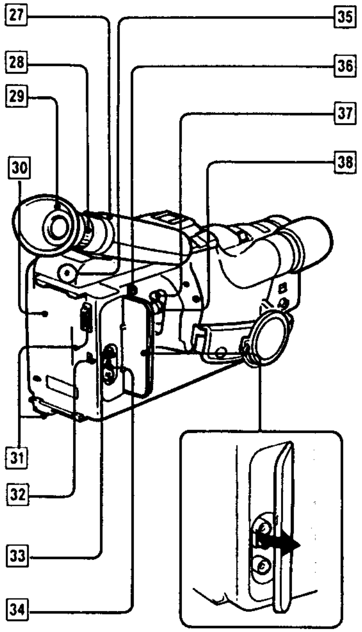
13. **EDITSEARCH (and ⊖ recording review) button** ㉔
14. **FADER button** ㊳
15. **MACRO AF (Auto-focusing in macro) button** ㊱
    Press to record close-ups with automatic focusing.
16. **Lens hood (Focus ring)** ㉚
17. **SHUTTER SPEED button** ㉝
18. **WHT BAL (white balance) button** ㉛
19. **BACK LIGHT button** ㉞
20. **PUSH AUTO button** ㉚
21. **FOCUS button** ㉚
22. **BATT (battery eject) knob** ⑬
23. **EJECT (cassette eject) button** ⑲
24. **Tripod receptacle (bottom)**
25. **AUTO LOCK cover** ㉘
    To adjust the focus, white balance, back light, or shutter speed manually, slide open this cover so that the buttons inside can be seen.
26. **Lithium battery compartment (bottom)** ⑰

(A-3)

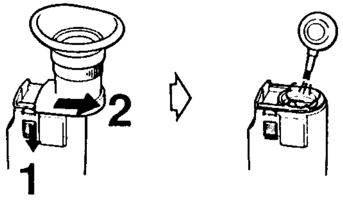

Less than 6.5 mm (9/32 inches)

Note (A-3)
When attaching a tripod other than Sony's, make sure that the length of the camera mounting screw is less than 6.5mm. Otherwise, the screw may damage the inner parts of the camcorder.

(A-4)



(A-5)



(A-4)

[27] **Viewfinder (A-5)**
The picture being recorded or played back can be monitored in black and white here. Also, marks such as caution indicators and function mode appear here.

[28] **Viewfinder lens adjustment ring ⑳**

[29] **Eyecup**

[30] **Battery mounting surface ⑪**

[31] **Hooks for shoulder strap**

[32] **▣ REMOTE COMMANDER ON/OFF switch ⑧**
Set to "ON" when using the supplied wireless Remote Commander. When you do not use the Commander, set to "OFF" to keep the unit from being operated incorrectly by another Commander etc.

[33] **VIDEO/AUDIO OUT (output) jacks (phono jacks)**

[34] **RFU DC OUT (RFU adaptor DC output) jack (special minijack)**
Attach the supplied RFU adaptor here.

[35] **Camera recording/battery lamp**
Lights up during recording and blinks when the battery becomes weak.

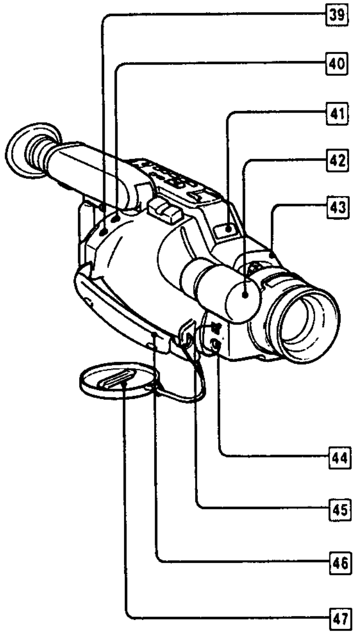
[36] **PUSH/SLIDE button (for adjusting the viewfinder)**
Slide the viewfinder to a suitable position.

[37] **STANDBY switch ㉑**
Slide up to set the camcorder to standby mode.

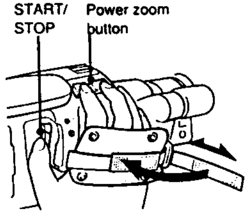
[38] **START/STOP button ㉑**
Press to start and stop camera recording.

To remove dust from inside the viewfinder (A-5)
Detach the eyecup as illustrated and clean the surface of the screen with a blower.

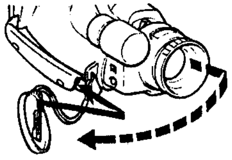
(A-6)



(A-7)



(A-8)



(A-6)

[39] **◉ (earphone) jack (minijack) ㉗**

[40] **REMOTE ⊂ (LANC)*control connector (stereo mini-minijack)**
Connect a wired remote control unit or an editing controller, etc. here.

[41] **Remote sensor ⑧**

[42] **Built-in microphone (monaural)**

[43] **Camera recording/battery lamp (59)**

[44] **REC START/STOP button (for low-position recording) ㉒**
Use this button instead of the START/STOP button for easier low-position recording.

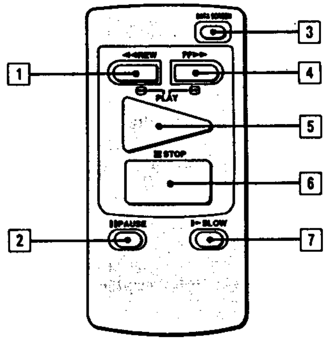
[45] **BUILT-IN MIC (microphone) switch ㉔**
Set to "WIND" when recording in a strong wind.

[46] **Grip belt (A-7)**
Adjust the length so that your thumb and fingers can easily manipulate the START/STOP button and the power zoom button.

[47] **Lens cap (A-8)**

***About the ⊂ (LANC)**
⊂ LANC stands for Local Application Control Bus System. The LANC connector is used for controlling the tape transport of video equipment and peripherals connected to it. This connector has the same function as the connectors indicated as CONTROL L or REMOTE.

(A-9)



Wireless Remote Commander

You can play back a tape from a distance. The buttons on the Commander with the same name or mark as those on the camcorder have the same function.

When you use the Commander
Be sure to set the ⑱ REMOTE COMMANDER ON/OFF switch on the camcorder to "ON", and then start operation of the camcorder, with the Commander pointing towards the remote sensor. (See page 9)
(A-9)

[1] **◀◀ REW (rewind) button ㊻, ㊼**

[2] **❚❚ PAUSE button ㊻, ㊼**

[3] **DATA SCREEN button ㊺**

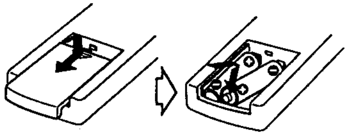
[4] **FF ▶▶ (fast forward) button ㊻, ㊼**

[5] **▷ PLAY (playback) button ㊻**

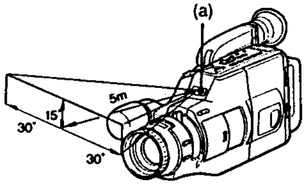
[6] **■ STOP button ㊻**

[7] **❙▸ SLOW button ㊼**

(A-10)



(A-11)



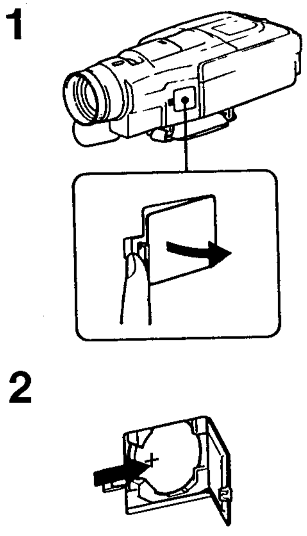
Inserting batteries
(A-10)
Insert two R6 (size AA) batteries with polarity positioned correctly.

Remotely controllable area
(A-11)
Point the Commander towards the remote sensor (a).

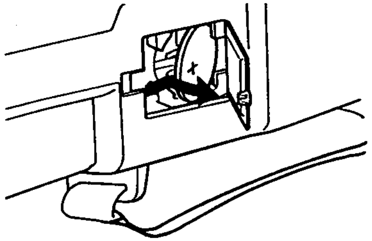
Notes on batteries
With normal operation, batteries will last for about six months. However, if the commander will not be used for a long period, remove the batteries to avoid possible damage from battery leakage.

Notes on the Remote Commander
- Keep the remote sensor away from the strong light source such as direct sunlight or illumination. Remote control with the Commander may not be effective.
- Be sure that there is no obstacle between the remote sensor and Commander.
- The command mode of the Commander is VTR2. Avoid to use the Sony VTRs with the same command mode at the same time.
- Be sure to set the REMOTE COMMANDER ON/OFF switch on the camcorder to "OFF" when you connect the receiver of a remote control kit (not supplied) to the REMOTE ⧖ control connector.

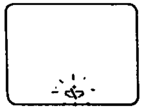
(D-1)



(D-2)



(D-3)



Preparing your camcorder 2

Setting the Date and Time

Inserting the Lithium Battery

(D-1)
This camcorder uses a lithium battery to activate the clock and to keep birthdays/anniversary in memory. Before operating it for the first time, install the supplied lithium battery.

1 **Open the cover of the lithium battery compartment on the bottom.**

2 **Install the supplied CR2025 lithium battery with the + side facing out.**

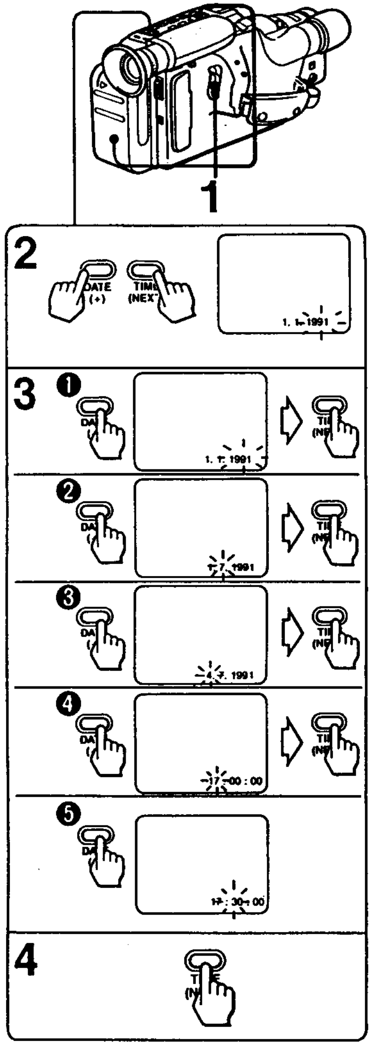
3 **Close the cover.**

To remove the lithium battery (D-2)
Press the side of the battery in the direction as indicated for installation.

Note on lithium battery life
The battery will last for approximately 1 year in normal operation.
When the lithium battery becomes weak, the ⏰ indication will blink on the viewfinder screen for about 5 seconds (when POWER is set to CAMERA) (D-3). In this case, **replace the battery with a Sony CR2025.**
Use of another battery may present a risk of fire or explosion.
While replacing the lithium battery, keep the battery pack or other power source attached. If the battery pack or other power source was not attached while replacing, readjustments of the date, time, birthdays and anniversary are necessary.

Cautions
- Keep the lithium battery out of the reach of children. Should the battery be swallowed, immediately consult a doctor.
- Wipe the battery with a dry cloth to assure a good contact.
- Be sure to observe the correct polarity when installing the battery.
- Do not hold the battery with metallic tweezers, otherwise a short-circuit may occur.
- Battery may explode if mistreated. Do not recharge, disassemble or dispose of in fire.

(D-4)



Setting the Date and Time

(D-4)

1 **Make sure that a power source and the lithium battery are connected, set POWER to CAMERA, and slide STANDBY up.**

2 **Press DATE (+) and TIME (NEXT) simultaneously for more than 1.5 seconds until the date indication appears in the viewfinder.**
DATE now functions as + (to advance numbers) and TIME functions as NEXT (to execute).

3 **Adjust the year, month, day, hour and minute, in that order.**
First adjust the blinking digits with +, and then press NEXT.

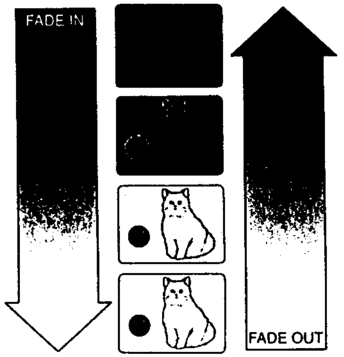
4 **Press NEXT to set the second.**
The clock starts operating.

To correct date and time setting
Repeat steps 2 to 4.

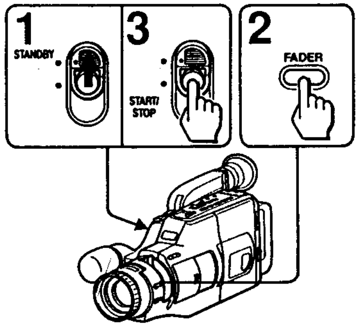
To advance the digits faster
Keep + pressed.

To check the preset date and time
Press DATE or TIME. When you press the same button again, the indication goes off.

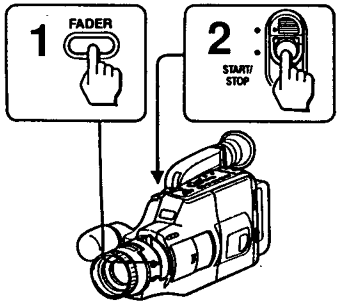
(O-1) (O-2)



(O-3)



(O-4)



Fade-in and Fade-out

When fading-in, the picture will gradually appear from black. The sound will also be gradually increased. (O-1)
When fading-out, the picture will gradually fade to black. The sound will be decreased. (O-2)
This function will give your recording a professional appearance.

To Fade-in

(O-3)

1 **Slide STANDBY up to set the camcorder in the standby mode.**

2 **Press FADER.**

3 **Press START/STOP.**
Fade-in is performed and recording will start.

To Fade-out

(O-4)

1 **While recording, press FADER.**

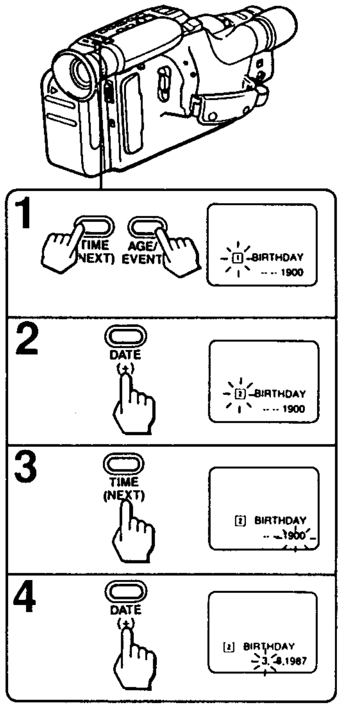
2 **Press START/STOP to stop the recording.**
Fade-out is performed and then recording stops.

To cancel the fade-in/fade-out function
Before pressing START/STOP, press FADER again.

If you want to use the fade-in/fade-out function repeatedly
Start from step 1 each time.

When the date/time (page 24) or age (page 41) is displayed
The date/time or age does not fade-in or fade-out.

(P-1)



Recording the Age of Your Child

You can record the age (in years and months) of your child, by presetting his/her birth date.
Once you preset your child's date of birth, your child's current age can be automatically displayed by pressing a single button. This allows you to make a record of your child's development.
Besides age, you can also preset the date of a specific event, and record how many years and months have passed since then.
You can record up to three ages or events.

Presetting the Birth Date/Event Date

Preparations
1 Make sure that power source and lithium battery are attached.
2 Set POWER to CAMERA while pressing the green button and slide STANDBY up.
You can see the display in the viewfinder.
Make sure that the date and time are set correctly. (page 18)
Otherwise, the birth date/event date cannot be preset correctly.

Operation (P-1)
Example: Preset "3.8. 1987" as the birth date of the second person.

1 **Press AGE/EVENT and TIME (NEXT) simultaneously for more than 1.5 seconds until the "[1] BIRTHDAY" indication appears and [1] blinks in the viewfinder.**

2 **Press DATE (+) to select [2].**
Each time you press DATE (+), the display changes as follows:

$$\begin{tikzcd} \boxed{1}\text{ BIRTHDAY} \arrow[r] & \boxed{2}\text{ BIRTHDAY} \arrow[d] \\ \boxed{3}\text{ EVENT} \arrow[u] & \end{tikzcd}$$

Although "EVENT" is displayed on [3], you can use it for age as well. [1] and [2] can also be used for event.

3 **Press TIME (NEXT).**
The "1900" indication blinks.

4 **Adjust the year, month, and day.**
First adjust the blinking digits with DATE (+), and then press TIME (NEXT).
The age is displayed when all the items are adjusted.

If you missed the desired number with DATE (+)
Keep pressing DATE (+). The number changes as follows:

year: 1900 → 1901
↑ ↓
current year – 99 ← current year

month: 1 → 2
↑ ↓
└ ← 12

day: 1 → 2
↑ ↓
└— 31

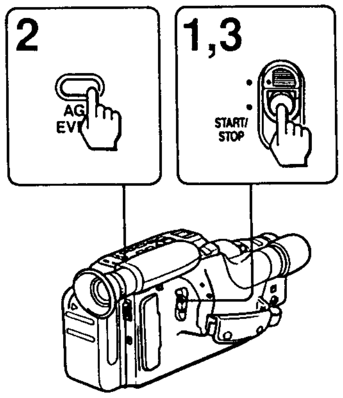
To correct/change the setting
Follow the procedure from step 1 again.

To advance the digits faster
Keep DATE (+) pressed.

To preset the year before 1900
1 After step 3 on page 39, keep pressing DATE (+) until the current year is displayed.
2 Press DATE (+) again.
The year goes back 99 years.
(example: 1991 → 1892)
3 Go to step 4.

When in 2000
"---.-- 1901" is displayed in step 3 on page 39. After that, it advances every year as "1902, 1903, ...".

(P-2)



Recording the Age

(P-2)

1 **During recording, press START/STOP at the point where you want to insert the age indication.**
The camcorder is set in the standby mode.

2 **Press AGE/EVENT to select the indication you want to record.**
Each time you press AGE/EVENT, the indication changes as follows:

No indication → [1] The first age
↑ ↓
[3] Anniversary ← [2] The second age ←
An item with no presetting is skipped.

The [1], [2], or [3] indication goes out.

3 **Press START/STOP.**
Recording starts again.
The age displayed in the viewfinder is recorded with the picture.

To stop recording the age
Press AGE/EVENT until the indication goes out.

To change the display while recording
Press AGE/EVENT until the indication you want to record is displayed. Recording of the indication you selected starts when [1], [2], or [3] goes out.

To cancel the stored birth date/event date
1 Proceed steps 1 and 2 of "Presetting the Birth Date/Event Date" and select the item you want to cancel.
2 Press TIME (NEXT) twice.
"Month" blinks.
3 Press DATE (+) to display "--.--"
4 Press TIME (NEXT).
The birth date/event date is deleted from the memory and is not displayed when you press AGE/EVENT.

If you do not record the age while recording
You cannot add it later during playing back or editing. Be sure to follow the procedure "Recording the Age" while recording.

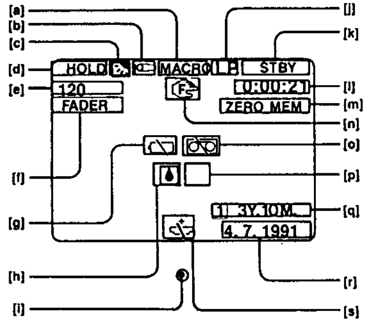
About memory back-up
The camcorder uses the lithium battery on the bottom to keep the birth date/event date in memory. On lithium battery life, see page 17.

When you connect the camcorder to a TV
If you do not use the data-screen function, the age indication will appear on the TV screen when the 1, 2, or 3 indication goes out in the viewfinder and recording starts.

Indications Inside the View-finder and List of Beeps

Indications Inside the Viewfinder

(X)



(X)
[a] Auto-focusing in macro range
[b] BUILT-IN MIC is set to WIND.
[c] BACK LIGHT is pressed.
[d] White balance mode (•, ☼, HOLD)
[e] Shutter speed
[f] FADER is pressed.
[g] "Exchange battery."
[h] Moisture has condensed.
[i] Shows up during recording.
When blinking: "Exchange battery."
[j] Recording or playback mode (LP or SP)
[k] Tape transport mode
[l] Tape counter
[m] ZERO MEM is pressed.
[n] Shows up during manual focusing.
When blinking: Autofocus malfunctioning
[o] "Exchange tape."
[p] "Clean video heads." ⊘/≜
[q] Age or anniversary
[r] Date or time.
[s] "Replace lithium battery."

List of Beeps

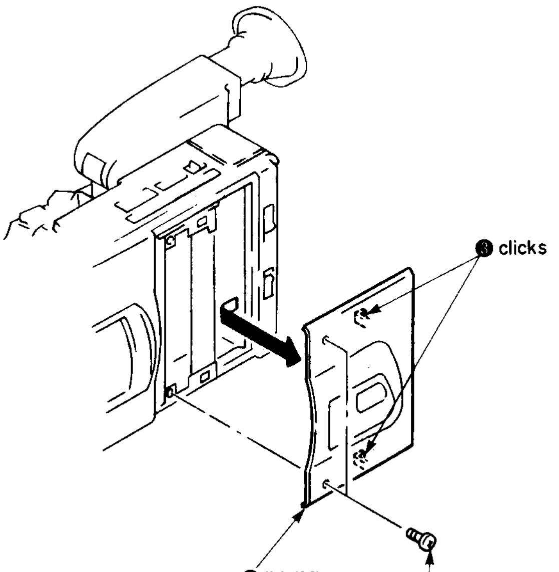
I: 1 beep

Beep sounds when:	Beep
Camera recording starts.	I
Camera recording stops.	II
The tape is at its end.	IIIIIIIIIIII (5 sec.)
The red mark on the cassette is exposed.	IIIIIIIIIIII (5 sec.)
Moisture condensation has occurred.	IIIIIIIIIIII (5 sec.)
Other trouble has occured.	IIIIIIIIIIII (5 sec.)

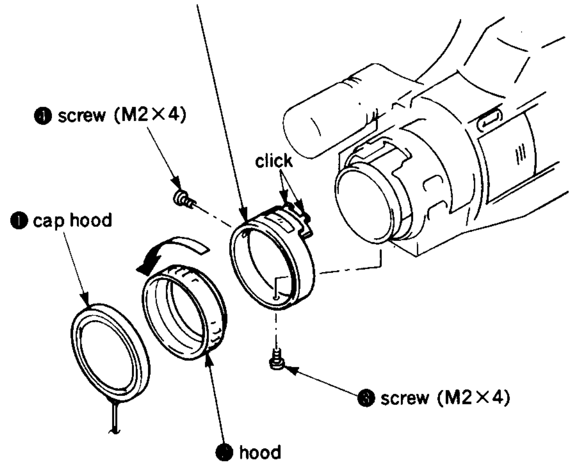
SECTION 2
DISASSEMBLY

2-1. REMOVAL OF CASSETTE LID ASSY

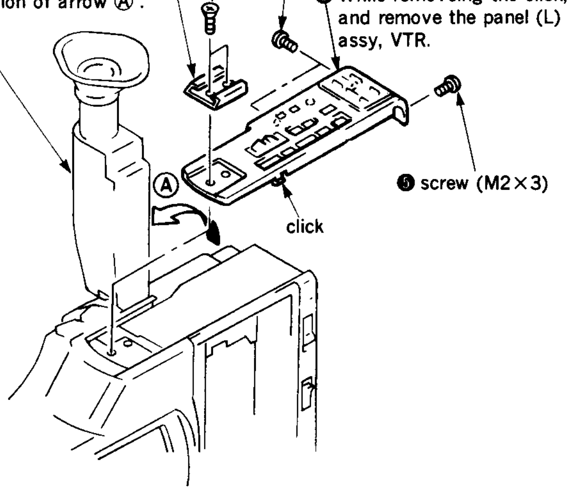
Note : When mounting, fit the click ❸ into holes completely, then clamp two screws ❶.


❸ clicks
❷ lid (M) assy, cassette
❶ screws (M2×4)

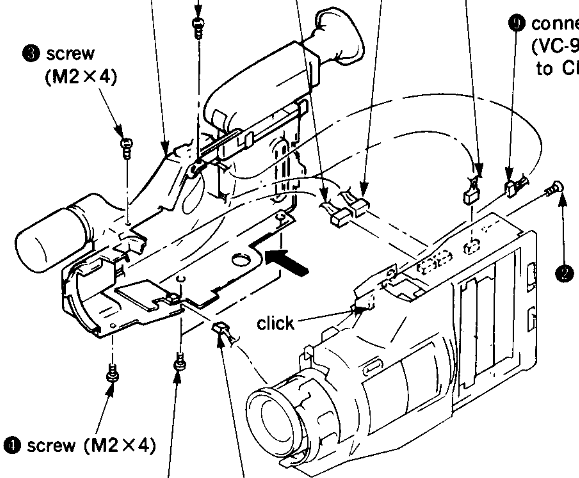
2-3. REMOVAL OF LENS HOOP


❺ While removing the click remove the lens hoop.
❹ screw (M2×4)
click
❶ cap hood
❸ screw (M2×4)
❷ hood

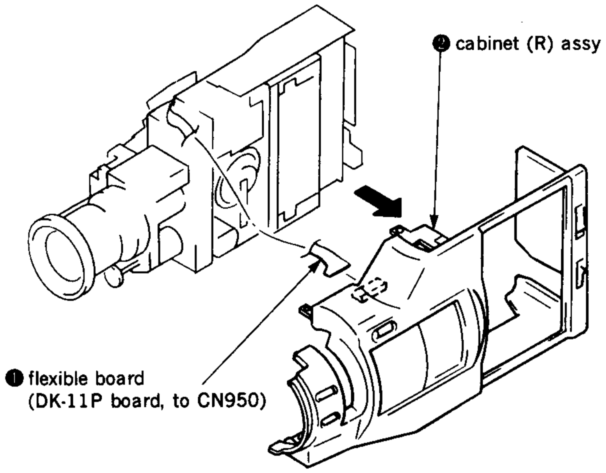
2-2. REMOVAL OF VTR PANEL (L) ASSY


❷ screws (M2×4)
❸ shoe, accessory
❹ screws (M2×3)
❶ Stand the EVF assy in the direction of arrow Ⓐ .
❻ While removeing the click, and remove the panel (L) assy, VTR.
❺ screw (M2×3)
Ⓐ
click

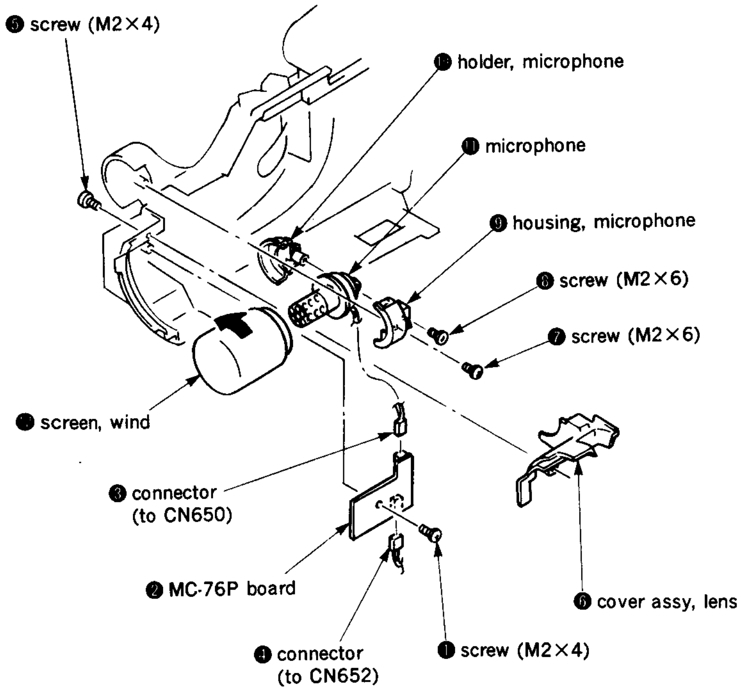
2-4. REMOVAL OF CABINET (L) ASSY


⓫ connector (VA-67P board, to CN401)
❿ connector (VA-67P board, to CN601)
❺ screw (M2×4)
❻ While removing the click, remove the cabinet (L) assy.
❽ connector (SS-136P board, to CN503)
❾ connector (VC-94P board, to CN306)
❸ screw (M2×4)
❷ screws (M2×4)
click
❶ screw (M2×4)
❶ screws (M2×4)
❼ connector (LI-35P board, to CN961)

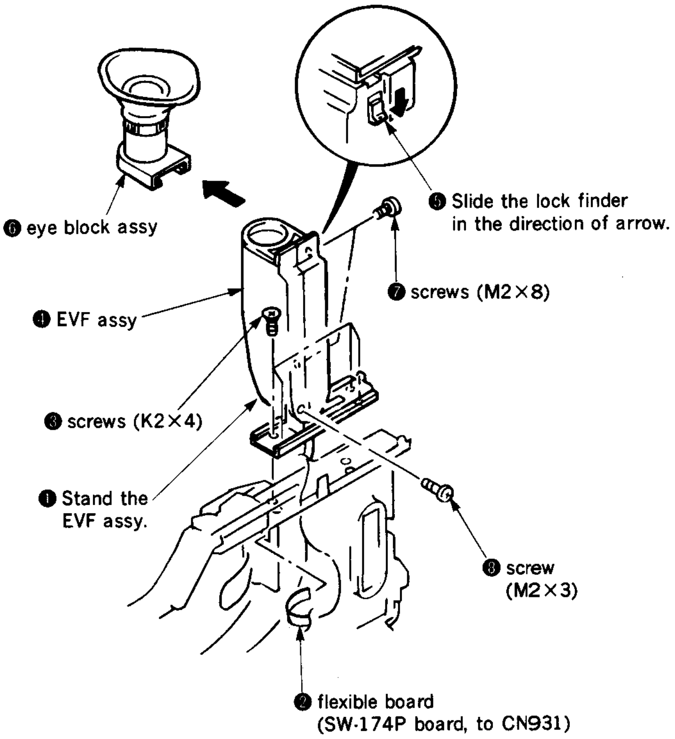
2-5. REMOVAL OF CABINET (R) ASSY

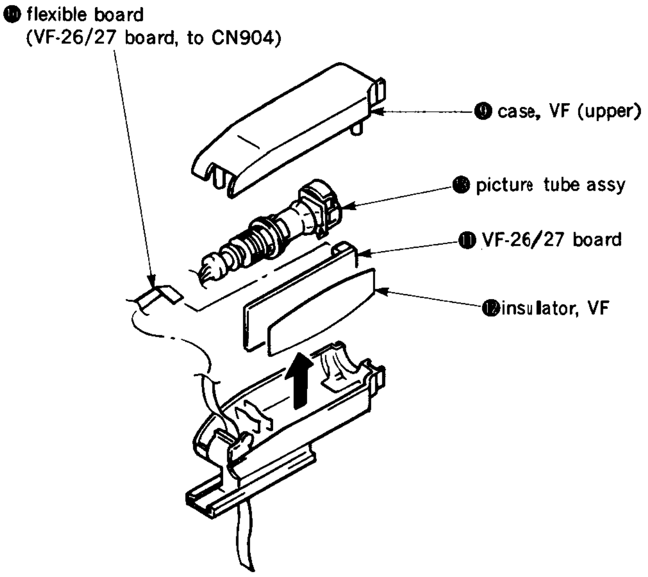

② cabinet (R) assy
① flexible board
(DK-11P board, to CN950)

2-6. REMOVAL OF MICROPHONE (MC-76P BOARD)

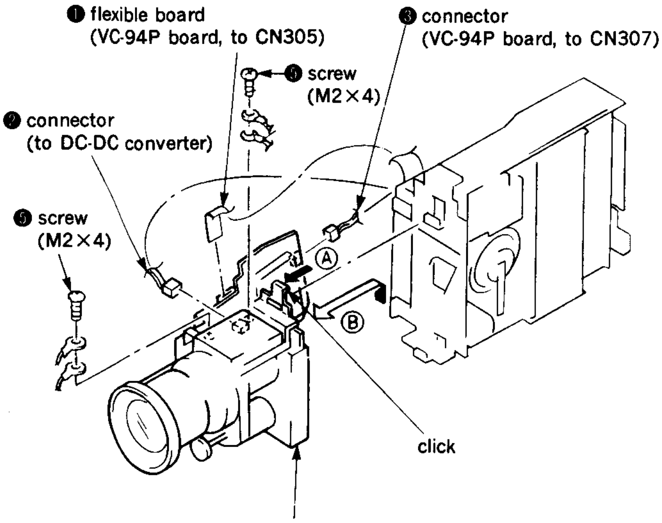

⑤ screw (M2×4)
⑪ holder, microphone
⑩ microphone
⑨ housing, microphone
⑧ screw (M2×6)
⑦ screw (M2×6)
⑫ screen, wind
③ connector
(to CN650)
② MC-76P board
⑥ cover assy, lens
④ connector
(to CN652)
① screw (M2×4)

2-7. REMOVAL OF EVF ASSY


⑥ eye block assy
⑤ Slide the lock finder
in the direction of arrow.
⑦ screws (M2×8)
④ EVF assy
③ screws (K2×4)
① Stand the
EVF assy.
⑧ screw
(M2×3)
② flexible board
(SW-174P board, to CN931)

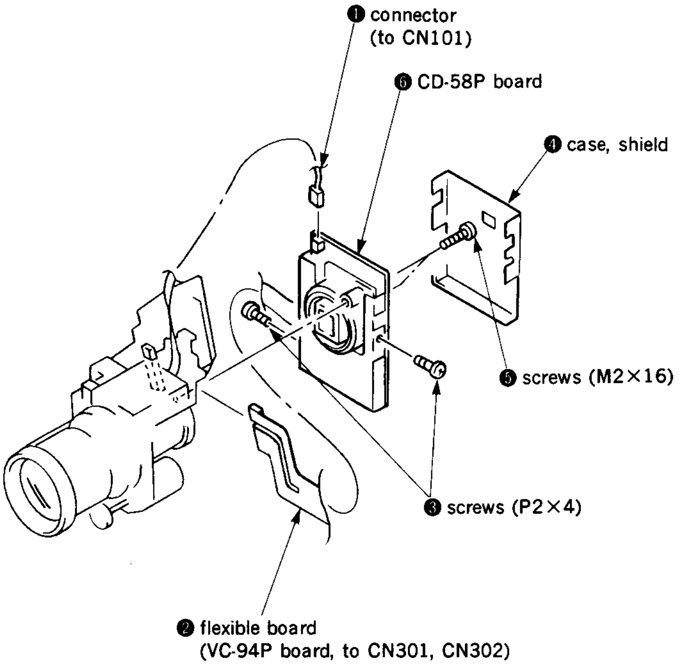

⑩ flexible board
(VF-26/27 board, to CN904)
⑨ case, VF (upper)
⑬ picture tube assy
⑪ VF-26/27 board
⑫ insulator, VF

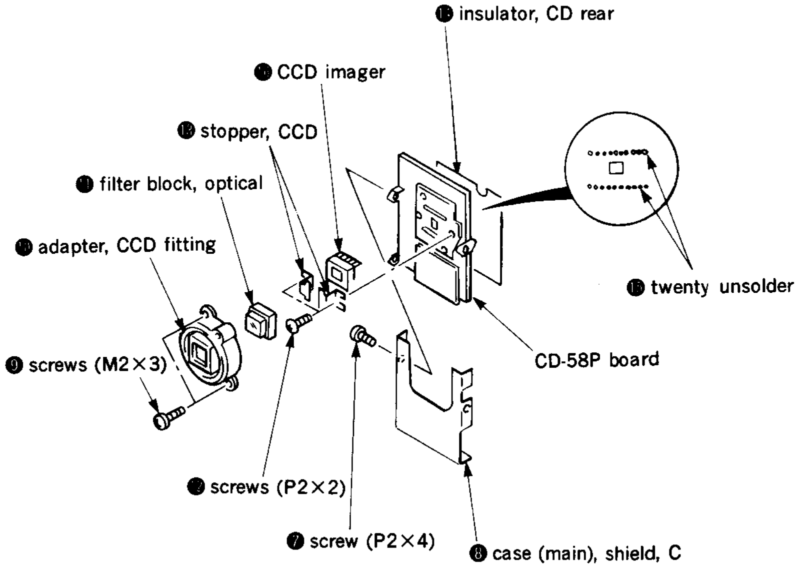
2-8. REMOVAL OF CAMERA BLOCK


❶ flexible board
(VC-94P board, to CN305)
❸ connector
(VC-94P board, to CN307)
❺ screw
(M2×4)
❷ connector
(to DC-DC converter)
❺ screw
(M2×4)
Ⓐ
Ⓑ
click

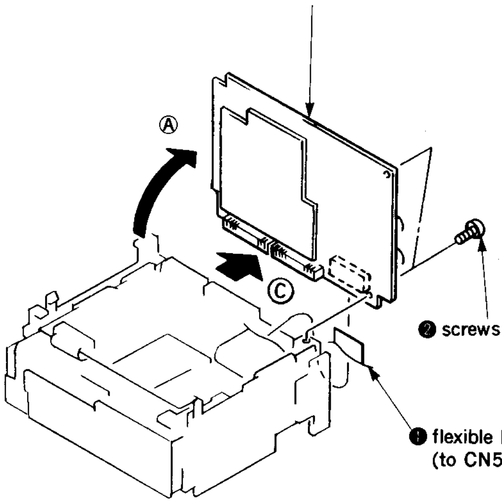
❹ While pushing the click to the direction of arrow Ⓐ, remove the camera block to the direction with arrow Ⓑ.

2-9. REMOVAL OF CCD IMAGER (CD-58P BOARD)

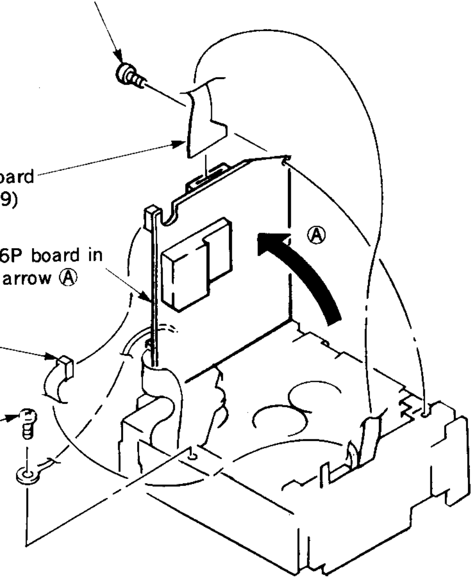

❶ connector
(to CN101)
❻ CD-58P board
❹ case, shield
❺ screws (M2×16)
❸ screws (P2×4)
❷ flexible board
(VC-94P board, to CN301, CN302)


⓮ insulator, CD rear
⓰ CCD imager
⓭ stopper, CCD
⓫ filter block, optical
❿ adapter, CCD fitting
⓯ twenty unsolder
CD-58P board
❾ screws (M2×3)
⓬ screws (P2×2)
❼ screw (P2×4)
❽ case (main), shield, C

2-10. REMOVAL OF VA-67P BOARD

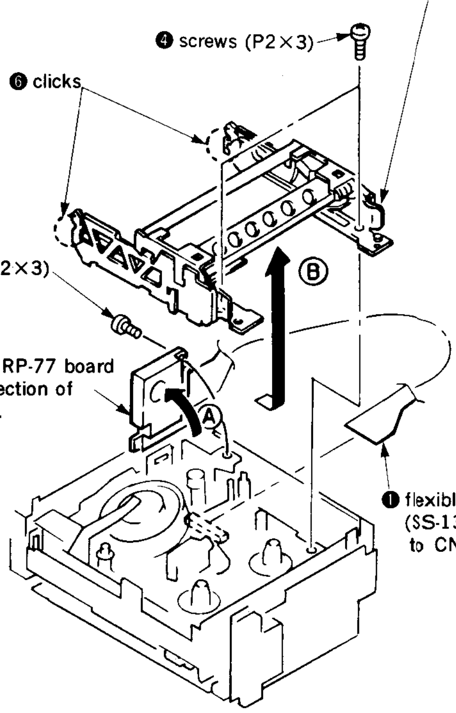

❸ Open the VA-67P board in the direction of arrow Ⓐ.
Ⓐ
Ⓒ
❷ screws (M2×4)
❶ flexible board (to CN508)

2-11. REMOVAL OF SS-136P BOARD


❸ screw (M2×4)
❶ flexible board (to CN509)
❺ Open the SS-136P board in the direction of arrow Ⓐ
Ⓐ
❷ connector (CN505)
❹ screw (M2×4)

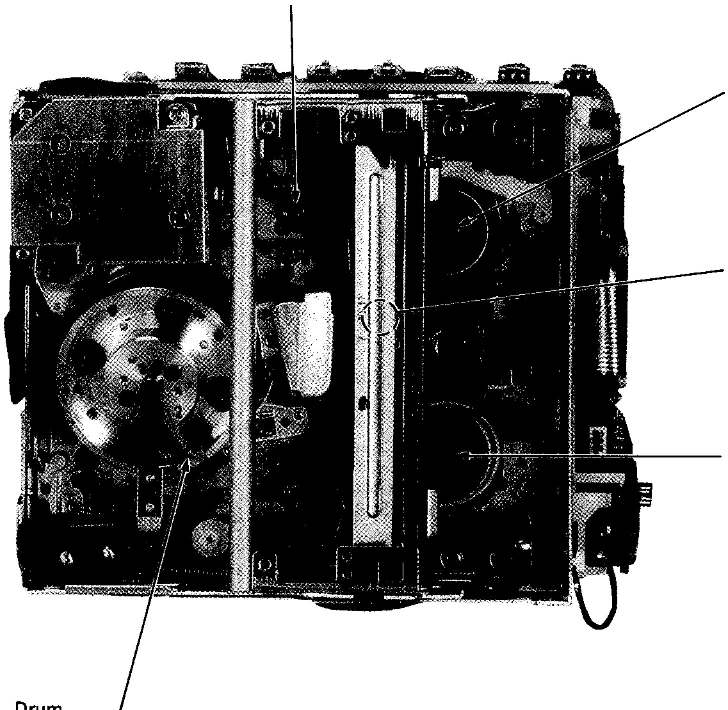
2-12. REMOVAL OF CASSETTE COMPARTMENT ASSEMBLY

Note : When mounting, fit the clicks ❻ into completely, then clamp two screws ❹.


❺ Remove the cassette compartment assy in the direction of arrow Ⓑ.
❹ screws (P2×3)
❻ clicks
❷ screw (P2×3)
Ⓑ
❸ Open the RP-77 board in the direction of arrow Ⓐ.
Ⓐ
❶ flexible board (SS-136P board, to CN501)

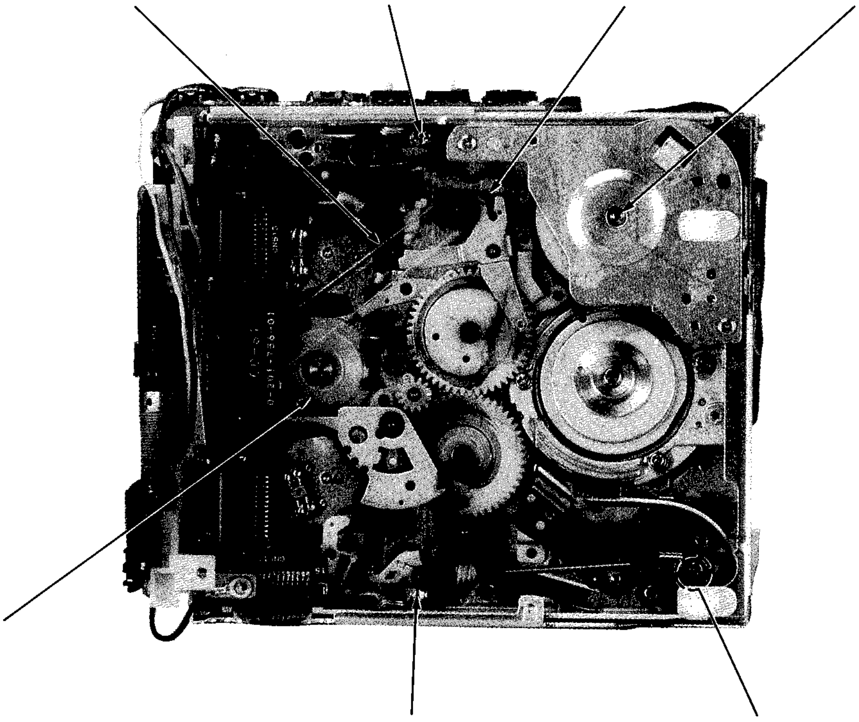
2-13. INTERNAL VIEWS

— Upper —


ARM block assy, pinch
A-7040-219-A
Table assy, reel, take-up
X-3728-855-1
Tape top/Tape end LED
(GL-452S)
8-719-940-81
Table assy, reel, supply
X-3728-851-1
Drum

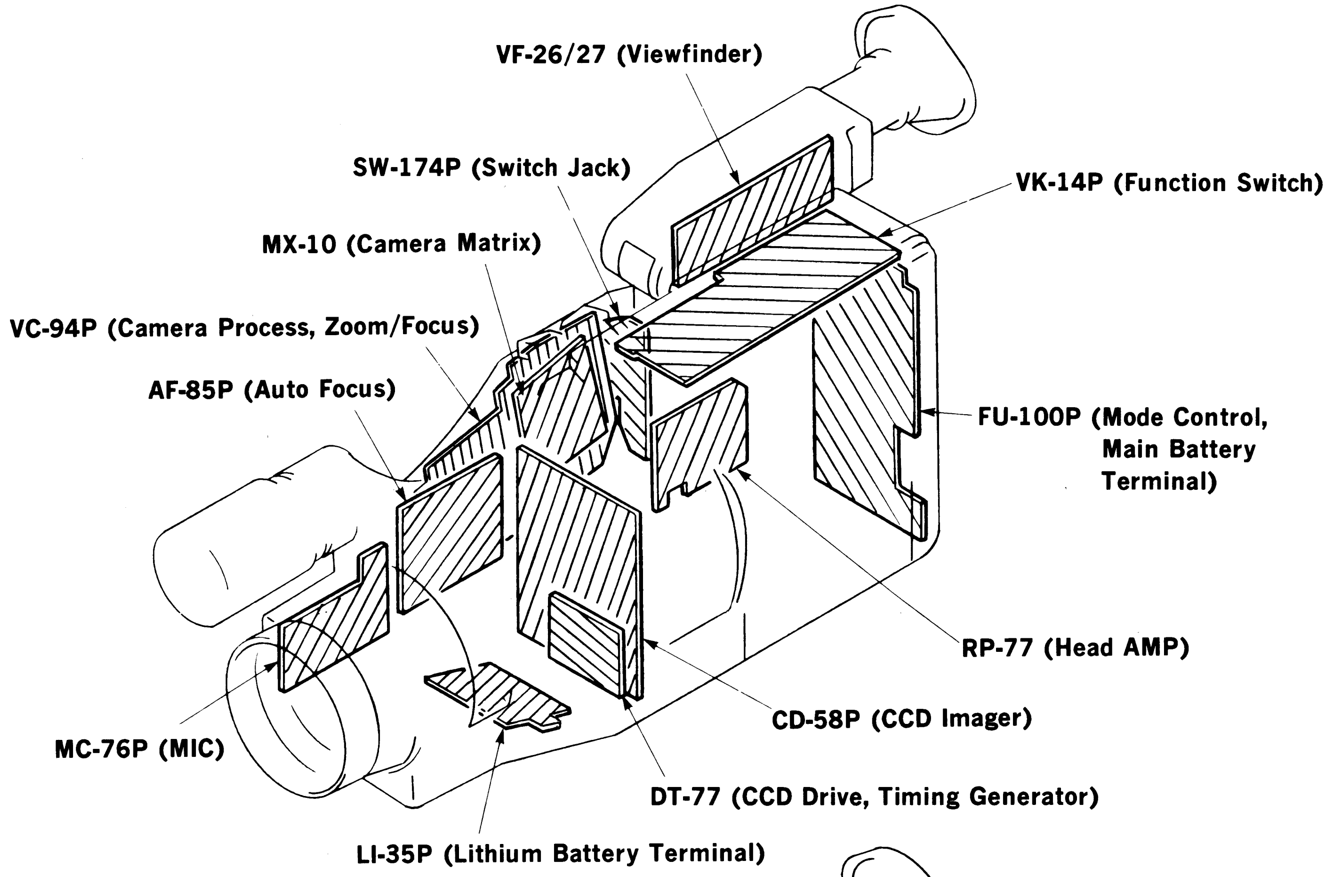
Drum	
Drum ASSY (DGU-64A-R)	A-7048-405-A
Drum upper (DGR-64-R)	A-7049-343-A

— Lower —

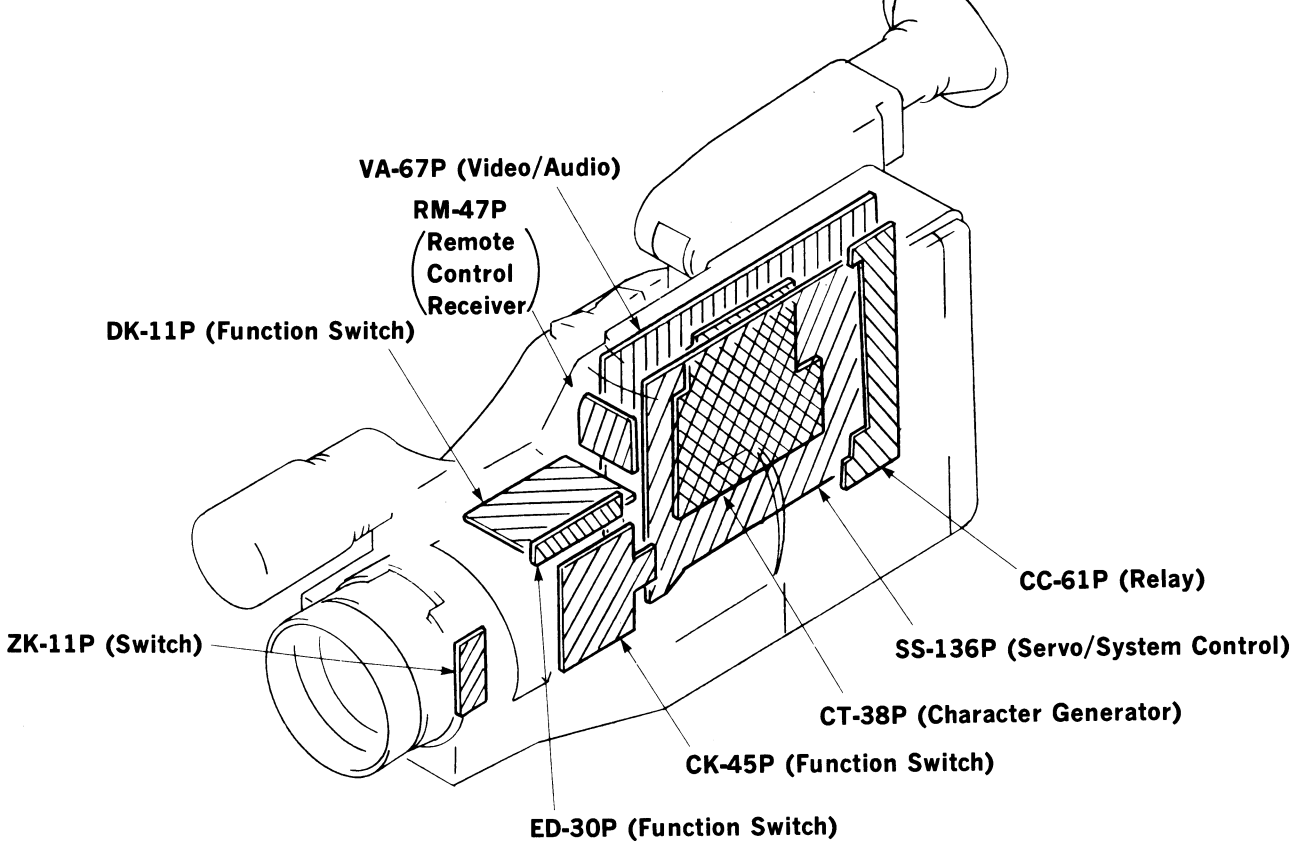

Belt (L), timing
3-741-197-01
Tape top sensor (EE-TP109)
8-729-906-48
Belt (S), timing
3-728-866-11
Motor, capstan (M902)
8-835-331-01
Gear assy, RK
X-3728-866-1
Tape end sensor
(EE-TP109)
8-729-906-48
Motor assy, loading (M903)
A-7040-208-A

SECTION 3
DIAGRAMS

3-1. CIRCUIT BOARDS LOCATION

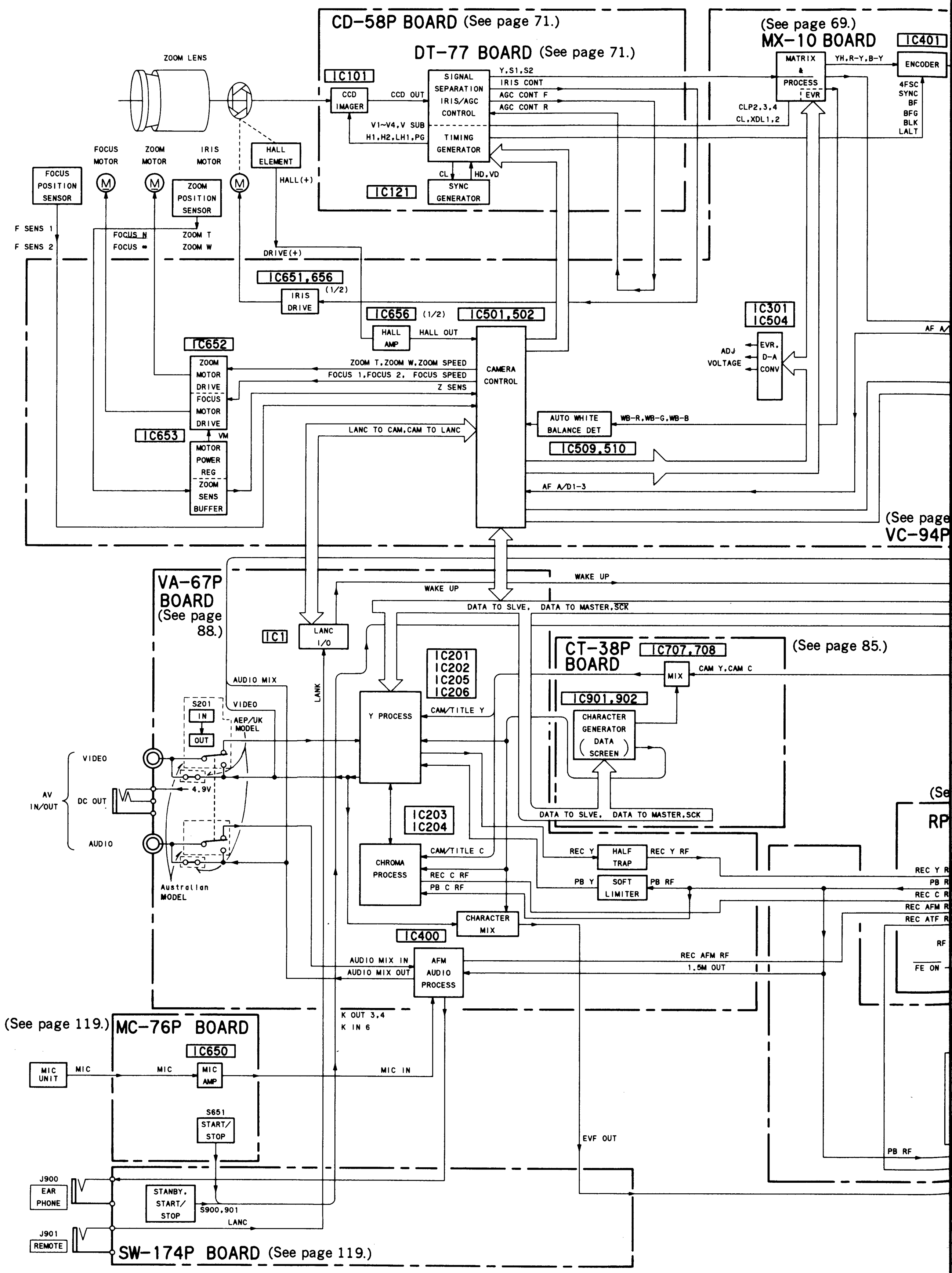


VF-26/27 (Viewfinder)
SW-174P (Switch Jack)
VK-14P (Function Switch)
MX-10 (Camera Matrix)
VC-94P (Camera Process, Zoom/Focus)
AF-85P (Auto Focus)
FU-100P (Mode Control, Main Battery Terminal)
RP-77 (Head AMP)
CD-58P (CCD Imager)
MC-76P (MIC)
DT-77 (CCD Drive, Timing Generator)
LI-35P (Lithium Battery Terminal)

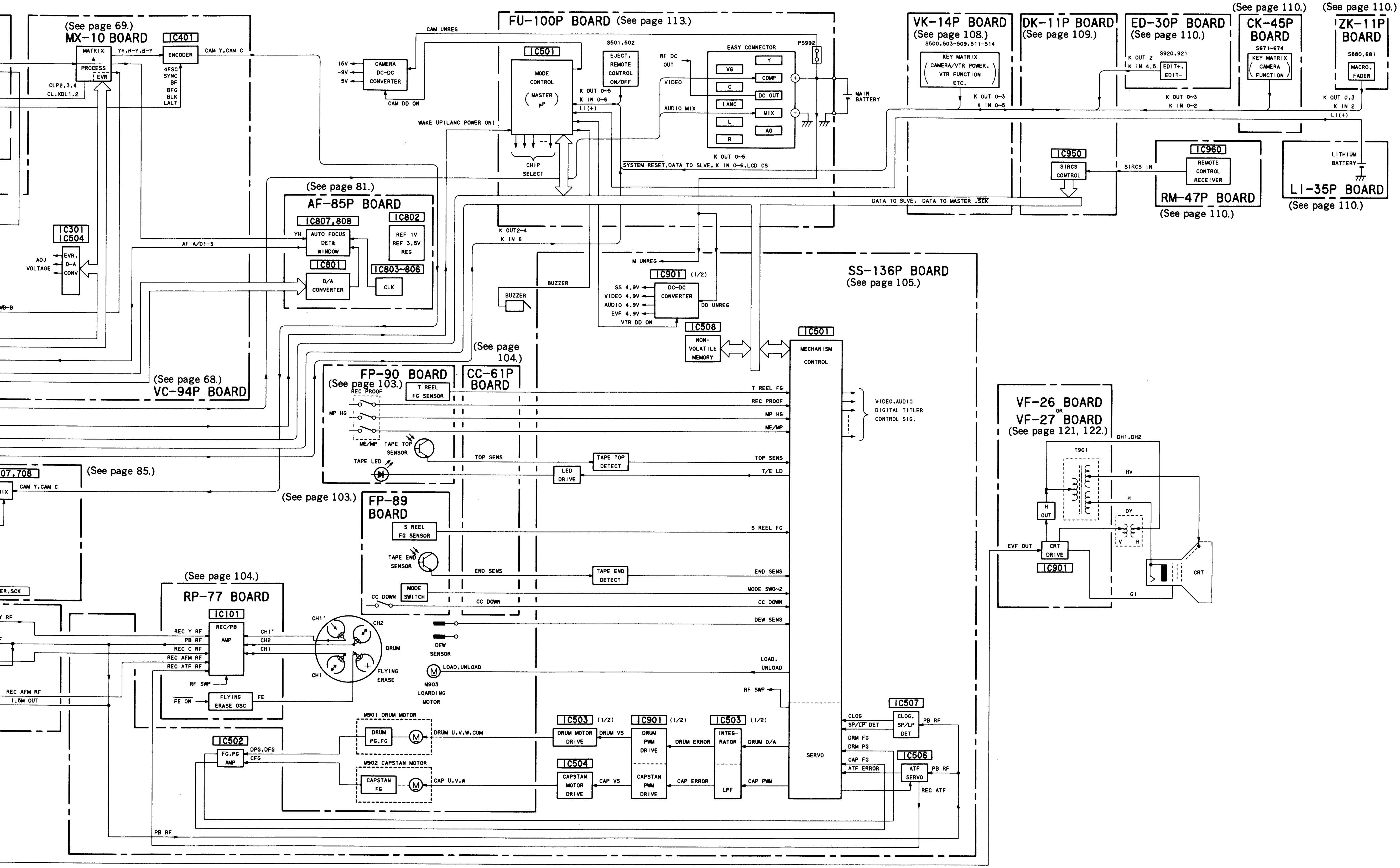


VA-67P (Video/Audio)
RM-47P (Remote Control Receiver)
DK-11P (Function Switch)
CC-61P (Relay)
ZK-11P (Switch)
SS-136P (Servo/System Control)
CT-38P (Character Generator)
CK-45P (Function Switch)
ED-30P (Function Switch)

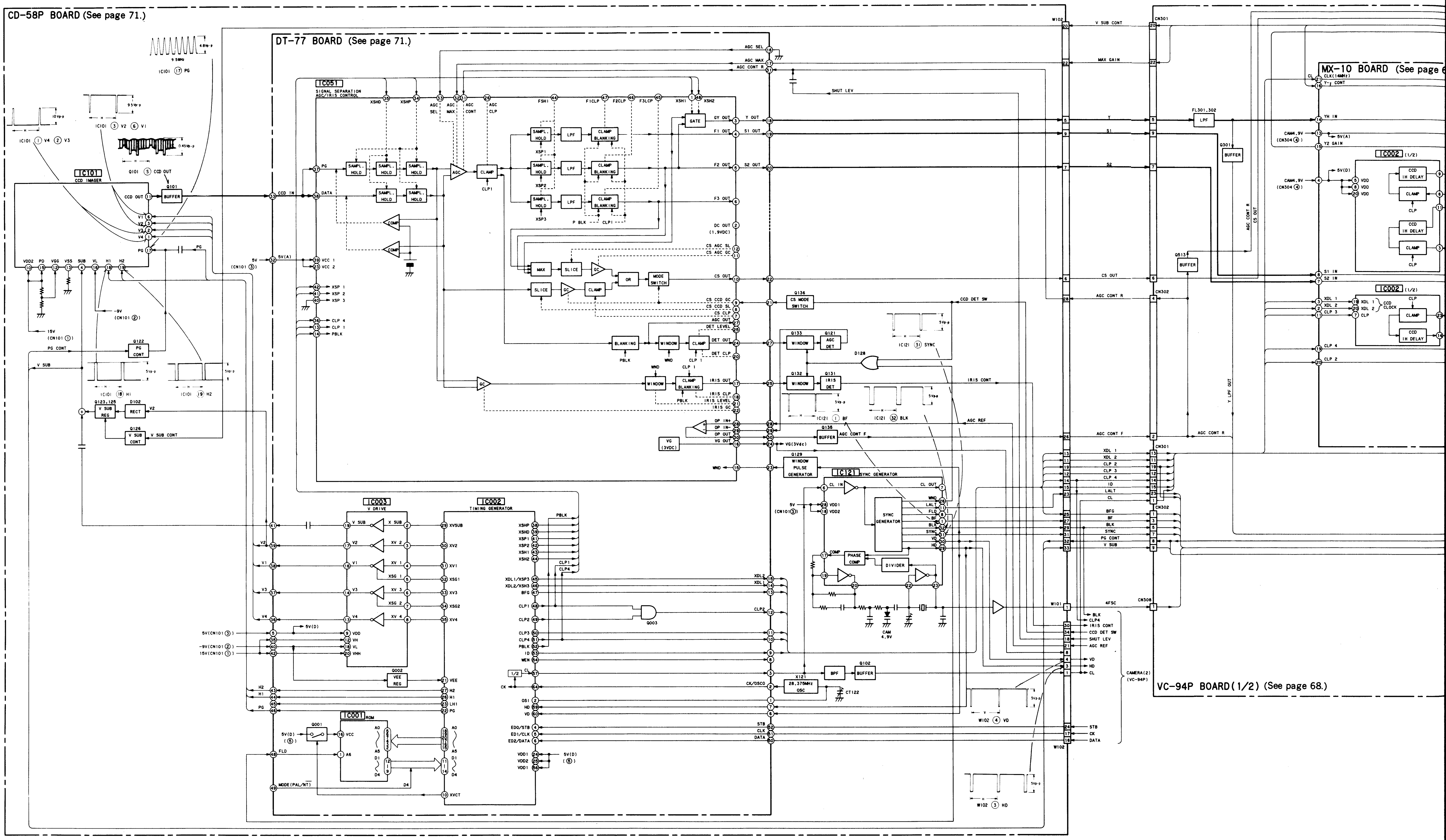
3-2. OVERALL BLOCK DIAGRAM

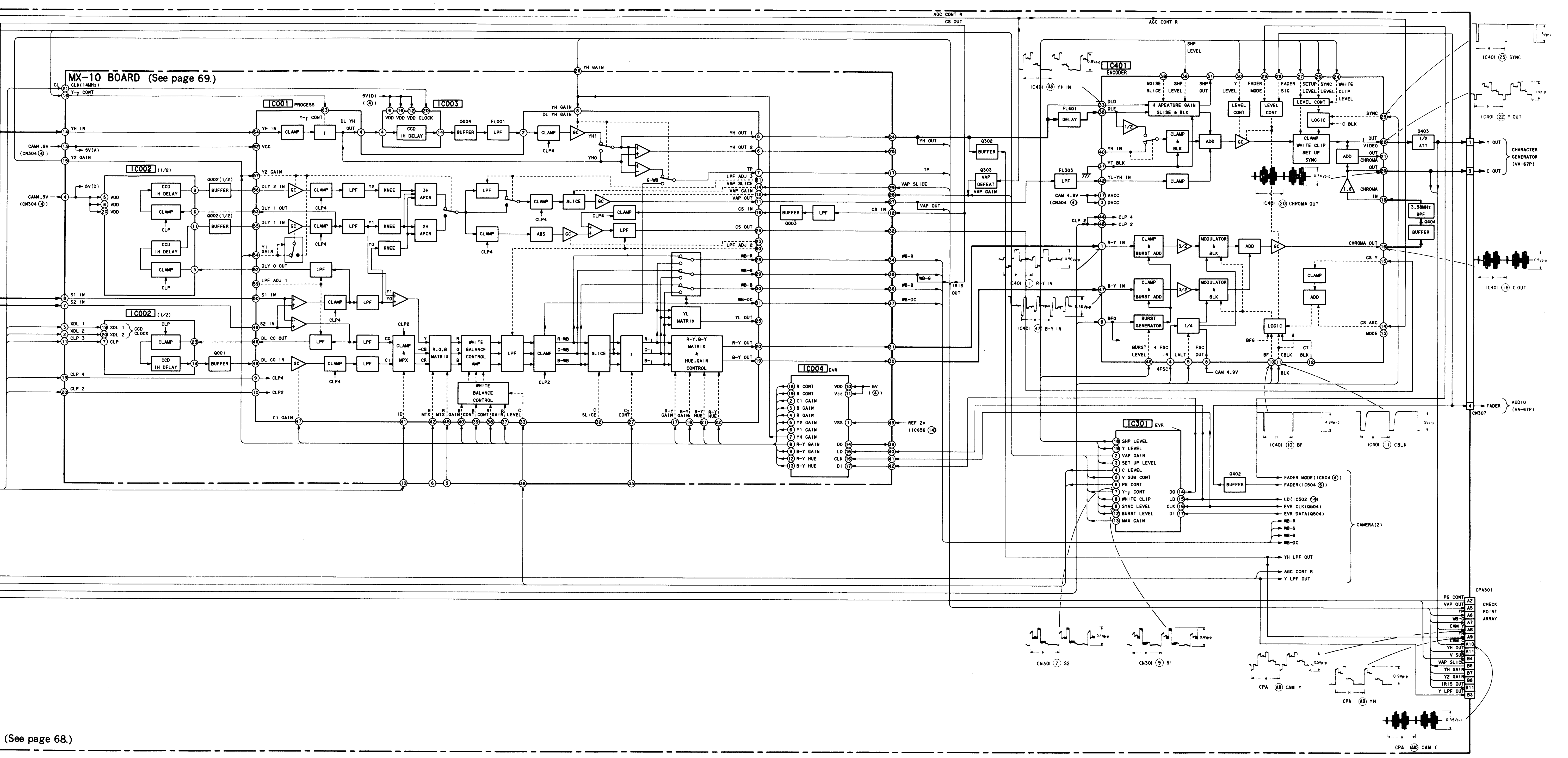


CD-58P BOARD (See page 71.)
DT-77 BOARD (See page 71.)
(See page 69.)
MX-10 BOARD
IC401
ENCODER
MATRIX & PROCESS
EVR
ZOOM LENS
IC101
CCD IMAGER
CCD OUT
SIGNAL SEPARATION IRIS/AGC CONTROL
TIMING GENERATOR
SYNC GENERATOR
IC121
FOCUS POSITION SENSOR
FOCUS MOTOR
ZOOM MOTOR
IRIS MOTOR
ZOOM POSITION SENSOR
HALL ELEMENT
IC651,656
IRIS DRIVE
IC656
HALL AMP
IC501,502
IC652
ZOOM MOTOR DRIVE
FOCUS MOTOR DRIVE
IC653
MOTOR POWER REG
ZOOM SENS BUFFER
CAMERA CONTROL
IC301
IC504
EVR, D-A CONV
AUTO WHITE BALANCE DET
IC509,510
(See page
VC-94P
VA-67P BOARD (See page 88.)
IC1
LANC I/O
IC201 IC202 IC205 IC206
Y PROCESS
IC203 IC204
CHROMA PROCESS
IC400
CHARACTER MIX
AFM AUDIO PROCESS
CT-38P BOARD
IC707,708
MIX
IC901,902
CHARACTER GENERATOR (DATA SCREEN)
(See page 85.)
HALF TRAP
SOFT LIMITER
VIDEO
DC OUT
AUDIO
AV IN/OUT
Australian MODEL
(See page 119.)
MC-76P BOARD
IC650
MIC UNIT
MIC AMP
S651 START/STOP
J900 EAR PHONE
J901 REMOTE
STANBY, START/STOP
S900,901
SW-174P BOARD (See page 119.)
RP

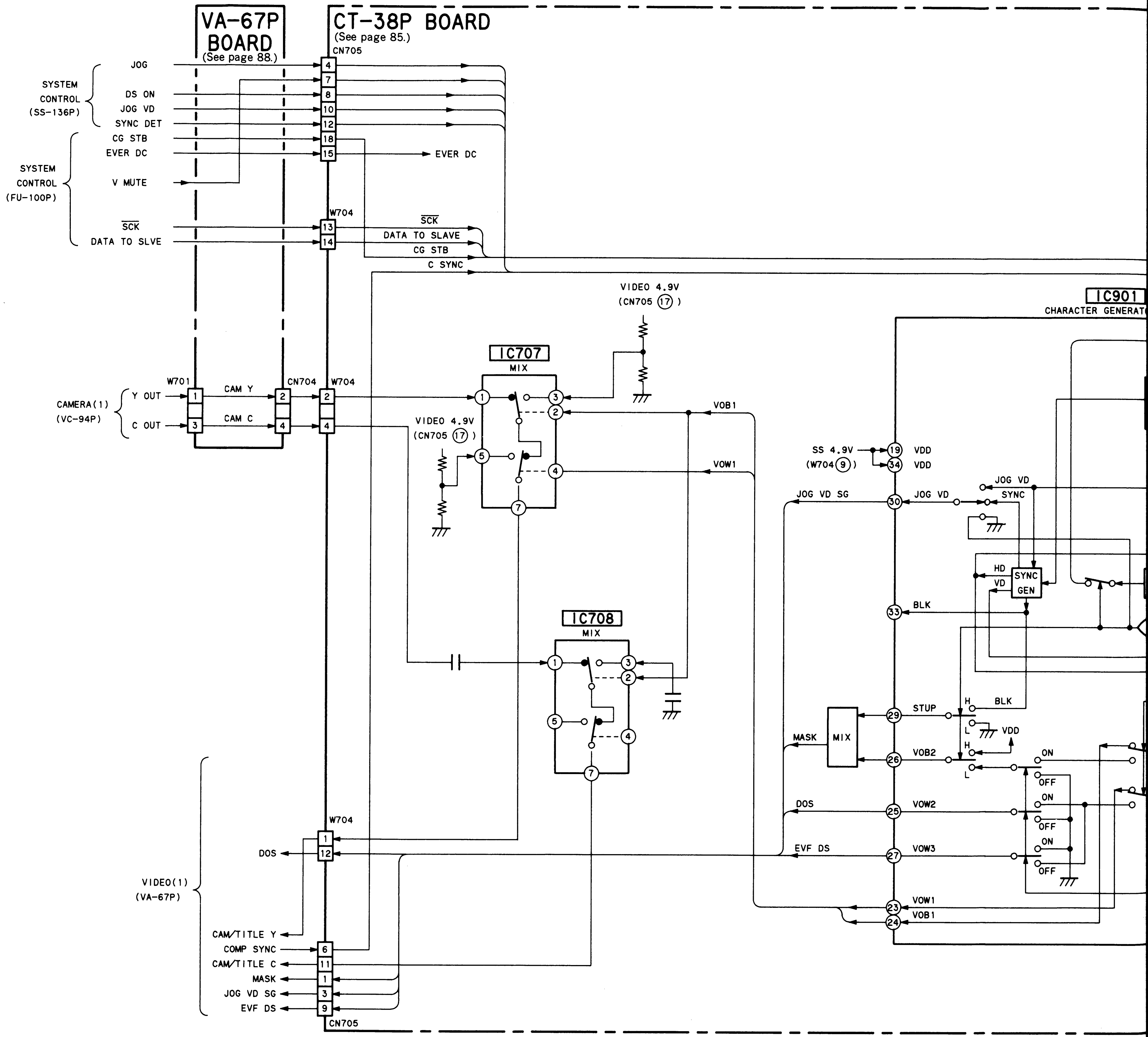

(See page 69.)
MX-10 BOARD
MATRIX & PROCESS
EVR
YH,R-Y,B-Y
IC401
ENCODER
CAM Y,CAM C
4FSC
SYNC
BF
BFG
BLK
LALT
CLP2,3,4
CL,XDL1,2
IC301
IC504
ADJ VOLTAGE
EVR, D-A CONV
AF A/D1-3
(See page 68.)
VC-94P BOARD
CAM UNREG
15V
-9V
5V
CAMERA DC-DC CONVERTER
CAM DD ON
WAKE UP(LANC POWER ON)
FU-100P BOARD (See page 113.)
IC501
MODE CONTROL
(MASTER µP)
CHIP SELECT
S501,502
EJECT, REMOTE CONTROL ON/OFF
K OUT 0-5
K IN 0-6
LI(+)
RF DC OUT
VIDEO
AUDIO MIX
EASY CONNECTOR
Y
VG
COMP
C
DC OUT
LANC
MIX
L
AG
R
P5992
MAIN BATTERY
K OUT 0-5
SYSTEM RESET,DATA TO SLVE, K IN 0-6,LCD CS
DATA TO SLVE, DATA TO MASTER ,SCK
K OUT2-4
K IN 6
(See page 81.)
AF-85P BOARD
IC807,808
YH
AUTO FOCUS DET& WINDOW
IC802
REF 1V
REF 3.5V
REG
IC801
D/A CONVERTER
IC803~806
CLK
BUZZER
M UNREG
IC901 (1/2)
SS 4.9V
VIDEO 4.9V
AUDIO 4.9V
EVF 4.9V
VTR DD ON
DC-DC CONVERTER
DD UNREG
IC508
NON-VOLATILE MEMORY
SS-136P BOARD
(See page 105.)
IC501
MECHANISM CONTROL
SERVO
(See page 104.)
CC-61P BOARD
FP-90 BOARD
(See page 103.)
REC PROOF
MP HG
ME/MP
T REEL FG SENSOR
TAPE TOP SENSOR
TAPE LED
TOP SENS
TAPE TOP DETECT
LED DRIVE
T REEL FG
REC PROOF
MP HG
ME/MP
TOP SENS
T/E LD
VIDEO,AUDIO
DIGITAL TITLER
CONTROL SIG.
(See page 103.)
FP-89 BOARD
S REEL FG SENSOR
TAPE END SENSOR
END SENS
TAPE END DETECT
MODE SWITCH
CC DOWN
S REEL FG
END SENS
MODE SWO-2
CC DOWN
DEW SENS
DEW SENSOR
LOAD,UNLOAD
LOAD, UNLOAD
M903 LOARDING MOTOR
RF SWP
07,708
IX
CAM Y,CAM C
(See page 85.)
ER,SCK
(See page 104.)
RP-77 BOARD
IC101
REC/PB AMP
REC Y RF
PB RF
REC C RF
REC AFM RF
REC ATF RF
RF SWP
CH1'
CH2
CH1
DRUM
FLYING ERASE
FE ON
FLYING ERASE OSC
FE
REC AFM RF
1.5M OUT
IC502
FG,PG AMP
DPG,DFG
CFG
M901 DRUM MOTOR
DRUM PG,FG
DRUM U,V,W,COM
M902 CAPSTAN MOTOR
CAPSTAN FG
CAP U,V,W
PB RF
IC503 (1/2)
DRUM MOTOR DRIVE
DRUM VS
IC901 (1/2)
DRUM PWM DRIVE
DRUM ERROR
IC503 (1/2)
INTEG-RATOR
LPF
DRUM D/A
IC504
CAPSTAN MOTOR DRIVE
CAP VS
CAPSTAN PWM DRIVE
CAP ERROR
CAP PWM
CLOG
SP/LP DET
DRM FG
DRM PG
CAP FG
ATF ERROR
IC507
CLOG, SP/LP DET
PB RF
IC506
ATF SERVO
PB RF
REC ATF
VK-14P BOARD
(See page 108.)
S500,503-509,511-514
KEY MATRIX
(CAMERA/VTR POWER, VTR FUNCTION ETC.)
K OUT 0-3
K IN 0-6
DK-11P BOARD
(See page 109.)
IC950
SIRCS CONTROL
SIRCS IN
ED-30P BOARD
(See page 110.)
K OUT 2
K IN 4.5
S920,921
EDIT+, EDIT-
K OUT 0-3
K IN 0-2
(See page 110.)
CK-45P BOARD
S671-674
KEY MATRIX (CAMERA FUNCTION)
(See page 110.)
ZK-11P BOARD
S680,681
MACRO, FADER
K OUT 0,3
K IN 2
LI(+)
IC960
REMOTE CONTROL RECEIVER
RM-47P BOARD
(See page 110.)
LITHIUM BATTERY
LI-35P BOARD
(See page 110.)
VF-26 BOARD
OR
VF-27 BOARD
(See page 121, 122.)
DH1,DH2
T901
HV
H
DY
V
H OUT
EVF OUT
CRT DRIVE
IC901
G1
CRT

3-3. CAMERA (1) BLOCK DIAGRAM

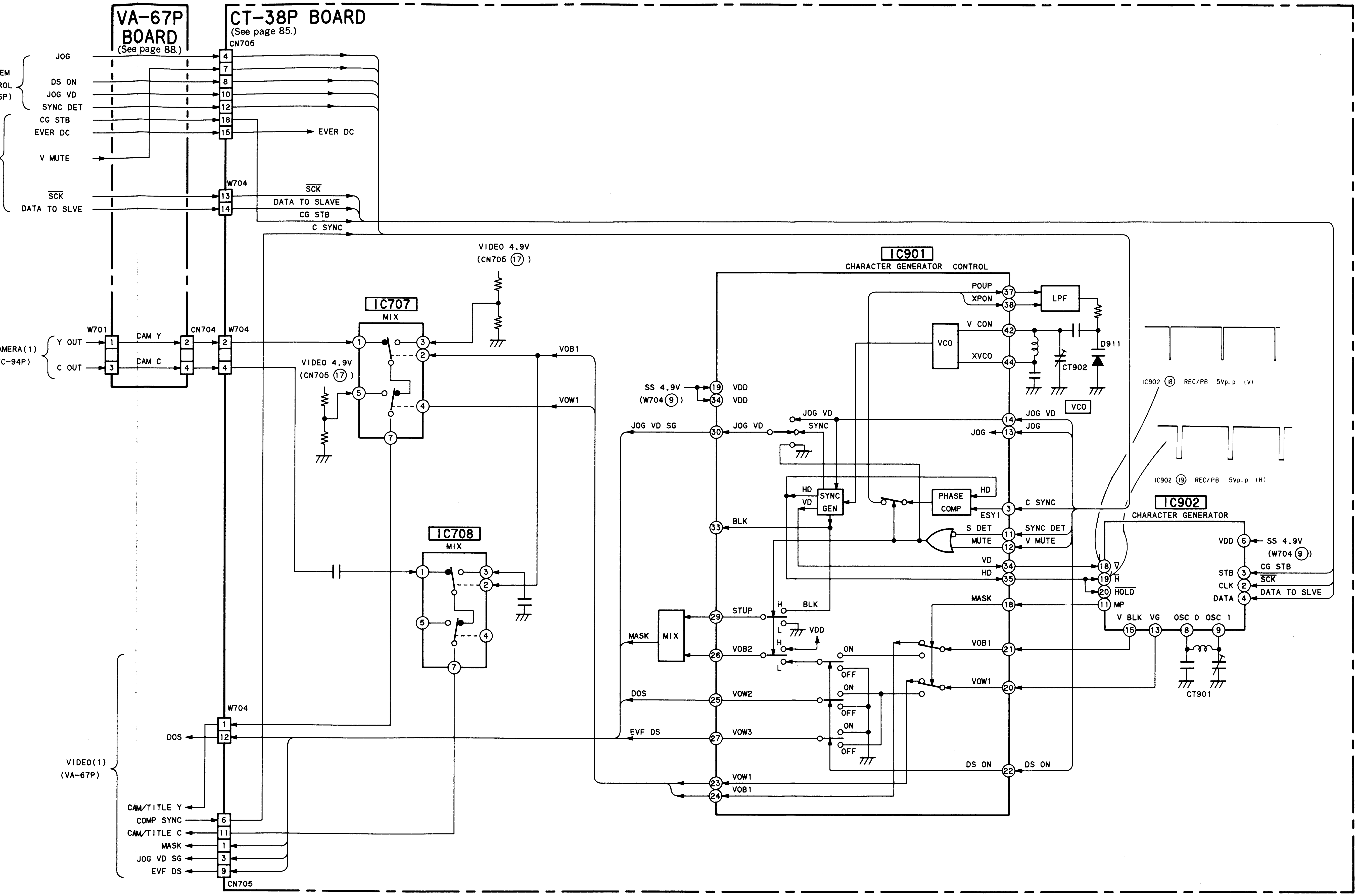

CD-58P BOARD (See page 71.)
DT-77 BOARD (See page 71.)
MX-10 BOARD (See page
VC-94P BOARD (1/2) (See page 68.)
IC101 CCD IMAGER
IC051 SIGNAL SEPARATION AGC/IRIS CONTROL
IC003 V DRIVE
IC002 TIMING GENERATOR
IC001 ROM
IC121 SYNC GENERATOR
IC002 (1/2)
Q101 BUFFER
Q122 PG CONT
Q123,125 V SUB REG
Q126 V SUB CONT
D102 RECT
Q136 CS MODE SWITCH
Q133 WINDOW
Q121 AGC DET
Q132 WINDOW
Q131 IRIS DET
Q138 BUFFER
Q129 WINDOW PULSE GENERATOR
Q002 VEE REG
Q001
Q003
Q102 BUFFER
X121 28.375MHz OSC
Q301 BUFFER
Q513 BUFFER
FL301,302 LPF
SAMPL. HOLD
AGC
CLAMP
LPF
CLAMP BLANKING
GATE
MAX
SLICE
GC
OR
MODE SWITCH
BLANKING
WINDOW
VG (3VDC)
SYNC GENERATOR
PHASE COMP
DIVIDER
BPF
CCD 1H DELAY
CCD IN
Y OUT
S1 OUT
S2 OUT
CS OUT
IRIS OUT
V SUB CONT
MAX GAIN
AGC CONT R
AGC CONT F
SHUT LEV
CCD DET SW
IRIS CONT
AGC REF
CAMERA(2) (VC-94P)
IC101 ① V4 ② V3
IC101 ③ V2 ⑥ V1
IC101 ⑰ PG
Q101 ⑤ CCD OUT
IC101 ⑱ H1
IC101 ⑲ H2
IC121 ㉛ SYNC
IC121 ① BF
IC121 ㉜ BLK
W102 ④ VD
W102 ③ HD


MX-10 BOARD (See page 69.)
(See page 68.)
IC001 PROCESS
IC002 (1/2)
IC003
IC004 EVR
IC301 EVR
IC401 ENCODER
CLK(14MHz)
Y-γ CONT
YH IN
CAM4.9V (CN304 ④)
5V(A)
Y2 GAIN
5V(D)
VDD
CCD 1H DELAY
CLAMP
CLP
BUFFER
Q002(1/2)
S1 IN
S2 IN
XDL 1
XDL 2
CLP 3
CCD CLOCK
Q001
CLP 4
CLP 2
YH GAIN
DL YH GAIN
DL YH OUT
Q004
FL001
LPF
GC
YH1
YH0
G-WB
YH OUT 1
YH OUT 2
TP
LPF ADJ 3
VAP SLICE
VAP GAIN
VAP OUT
CS IN
CS OUT
LPF ADJ 2
WB-R
WB-G
WB-B
WB-DC
YL OUT
R-Y OUT
B-Y OUT
DLY 2 IN
DLY 1 OUT
DLY 1 IN
DLY 0 OUT
LPF ADJ 1
DL C0 OUT
DL C0 IN
KNEE
3H APCN
2H APCN
SLICE
ABS
CLP4
Y1 GAIN
CLAMP & MPX
R.G.B MATRIX
WHITE BALANCE CONTROL AMP
WHITE BALANCE CONTROL
YL MATRIX
R-Y, B-Y MATRIX & HUE, GAIN CONTROL
C1 GAIN
ID
B MTX
R MTX
B GAIN
R CONT
B CONT
C GAIN
C LEVEL
C SLICE
C CONT
R-Y GAIN
B-Y GAIN
B-Y HUE
R-Y HUE
R CONT
B CONT
C1 GAIN
B GAIN
R GAIN
Y2 GAIN
Y1 GAIN
YH GAIN
R-Y GAIN
B-Y GAIN
R-Y HUE
B-Y HUE
VDD
Vcc
VSS
DO
LD
CLK
DI
REF 2V (IC656 ⑭)
BUFFER
Q003
AGC CONT R
CS OUT
Q302
Q303
VAP DEFEAT
IRIS OUT
IC401 ㉝ YH IN
FL401
DELAY
DLD
DLE
H APEATURE GAIN SLISE & BLK
NOISE SLICE
SHP LEVEL
SHP OUT
Y LEVEL
FADER MODE
FADER SIG
SETUP LEVEL
SYNC LEVEL
WHITE CLIP LEVEL
LEVEL CONT
LOGIC
C BLK
SYNC
ADD
CLAMP WHITE CLIP SET UP SYNC
VIDEO OUT
CHROMA OUT
YH IN
YT BLK
FL303
YL-YH IN
AVCC
DVCC
CAM 4.9V (CN304 ④)
CLP 4
CLP 2
R-Y IN
B-Y IN
BFG
CLAMP & BURST ADD
MODULATOR & BLK
BURST GENERATOR
1/4
BURST LEVEL
4 FSC IN
4FSC
LALT
FSC OUT
CAM 4.9V
CS Y
CS AGC
MODE
CHROMA IN
3.58MHz BPF
Q404
Q403
1/2 ATT
IC401 ⑳ CHROMA OUT
IC401 ① R-Y IN
IC401 ㊼ B-Y IN
IC401 ㉕ SYNC
IC401 ㉒ Y OUT
IC401 ⑯ C OUT
IC401 ⑩ BF
IC401 ⑪ CBLK
Y OUT
C OUT
CHARACTER GENERATOR (VA-67P)
FADER
AUDIO (VA-67P)
CN307
SHP LEVEL
Y LEVEL
VAP GAIN
SET UP LEVEL
V SUB CONT
PG CONT
WHITE CLIP
SYNC LEVEL
BURST LEVEL
MAX GAIN
Q402
FADER MODE (IC504 ④)
FADER (IC504 ⑤)
LD (IC502 ⑬)
EVR CLK (Q504)
EVR DATA (Q504)
CAMERA(2)
YH LPF OUT
AGC CONT R
Y LPF OUT
CPA301
PG CONT
VAP OUT
TP
WB-G
CAM Y
CAM C
YH OUT
V SUB
VAP SLICE
YH GAIN
Y2 GAIN
IRIS OUT
Y LPF OUT
CHECK POINT ARRAY
CN301 ⑦ S2
CN301 ⑨ S1
CPA A8 CAM Y
CPA A9 YH
CPA A10 CAM C
5Vp-p
0.9Vp-p
0.34Vp-p
0.56Vp-p
0.4Vp-p
4.8Vp-p
0.35Vp-p

3-6. CHARACTER GENERATOR BLOCK DIAGRAM


VA-67P BOARD
(See page 88.)
CT-38P BOARD
(See page 85.)
CN705
SYSTEM CONTROL (SS-136P)
JOG
DS ON
JOG VD
SYNC DET
SYSTEM CONTROL (FU-100P)
CG STB
EVER DC
V MUTE
SCK
DATA TO SLVE
EVER DC
W704
SCK
DATA TO SLAVE
CG STB
C SYNC
VIDEO 4.9V
(CN705 ⑰)
IC707
MIX
IC708
MIX
CAMERA(1) (VC-94P)
Y OUT
C OUT
W701
CAM Y
CAM C
CN704
VOB1
VOW1
IC901
CHARACTER GENERAT
SS 4.9V
(W704 ⑨)
VDD
VDD
JOG VD SG
JOG VD
JOG VD
SYNC
HD
VD
SYNC GEN
BLK
STUP
H
L
BLK
VDD
MASK
MIX
VOB2
ON
OFF
DOS
VOW2
EVF DS
VOW3
VOW1
VOB1
VIDEO(1) (VA-67P)
DOS
CAM/TITLE Y
COMP SYNC
CAM/TITLE C
MASK
JOG VD SG
EVF DS
CN705

ACTER GENERATOR BLOCK DIAGRAM


VA-67P BOARD
(See page 88.)
CT-38P BOARD
(See page 85.)
CN705
EM
ROL
SP)
JOG
DS ON
JOG VD
SYNC DET
CG STB
EVER DC
V MUTE
SCK
DATA TO SLVE
EVER DC
W704
SCK
DATA TO SLAVE
CG STB
C SYNC
VIDEO 4.9V
(CN705 ⑰)
IC707
MIX
IC708
MIX
W701
CN704
CAM Y
CAM C
AMERA(1)
C-94P)
Y OUT
C OUT
VOB1
VOW1
IC901
CHARACTER GENERATOR CONTROL
POUP
XPON
LPF
V CON
XVCO
VCO
D911
CT902
SS 4.9V
(W704 ⑨)
VDD
JOG VD SG
JOG VD
SYNC
JOG
HD
VD
SYNC GEN
PHASE COMP
ESY1
C SYNC
BLK
S DET
MUTE
SYNC DET
V MUTE
MASK
STUP
H
L
VDD
MIX
VOB2
ON
OFF
DOS
VOW2
EVF DS
VOW3
DS ON
VOW1
VOB1
IC902 ⑱ REC/PB 5Vp-p (V)
IC902 ⑲ REC/PB 5Vp-p (H)
IC902
CHARACTER GENERATOR
V
H
HOLD
MP
STB
CLK
DATA
CG STB
SCK
DATA TO SLVE
V BLK
VG
OSC 0
OSC 1
CT901
VIDEO(1)
(VA-67P)
CAM/TITLE Y
COMP SYNC
CAM/TITLE C
MASK
JOG VD SG
EVF DS

3-4. CAMERA SYSTEM CONTROL VC-94P BOARD IC501 (MC68HC11E9)

〔Description〕

MC68HC11E9 is a 8-bit one-chip micro controller with a built-in nonvolatile memory (EEPROM). All the camera system, which has been composed by mere than one, can be controlled by only this micro controller. In addition, protocol master control of the LANC communication can be performed.

1. Function

1) EVR Control
2) AWB Control
3) AE Control
4) AF Control
5) LANC communication protocol control

2. Pin Description

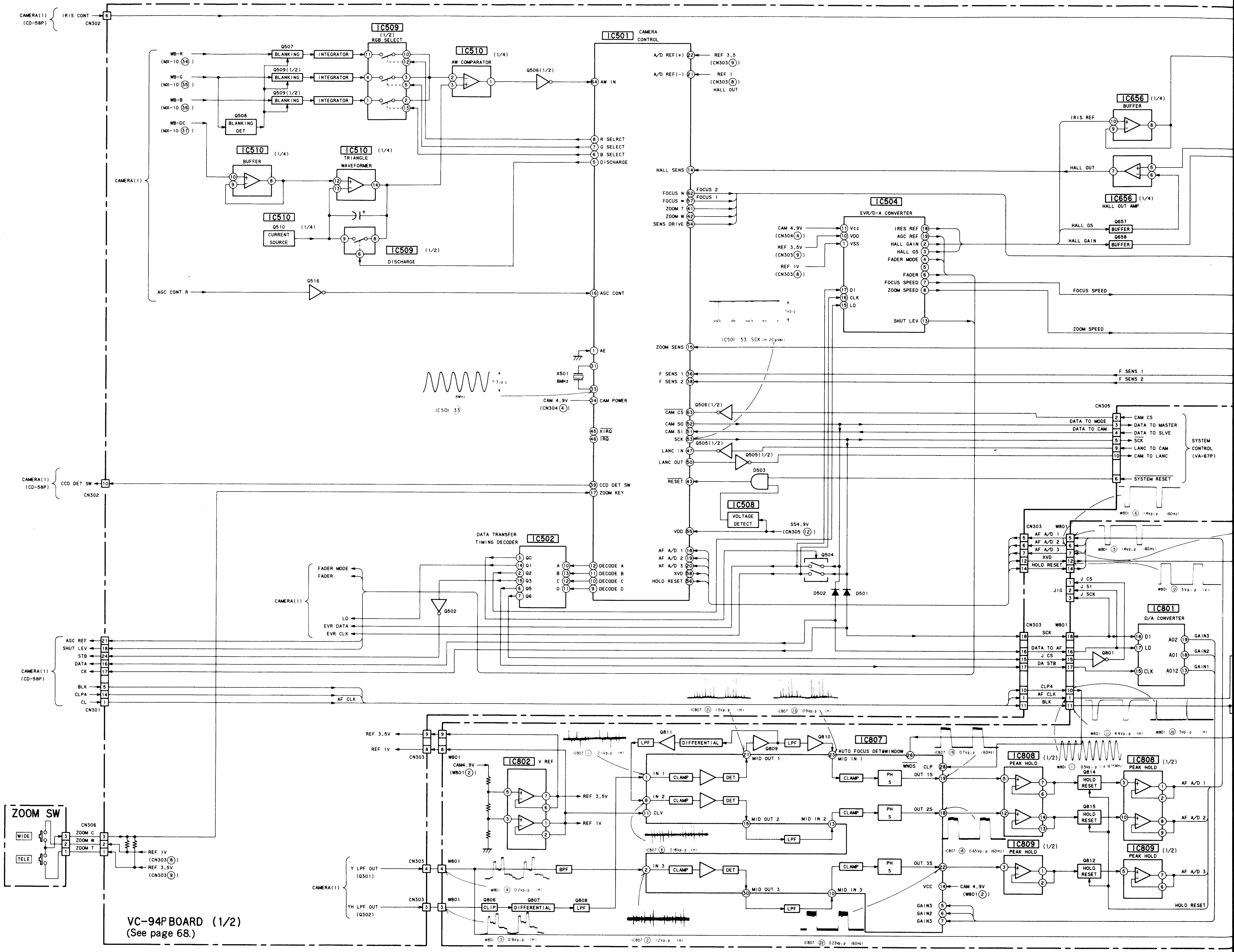
PIN No.	PIN Name	I/O	Function
1	AE	I	AE Integration-type A/D converter comparator input
2	NC	—	——
3	NC	—	——
4	NC	—	——
5	DISCHG	O	AWB. AE Integration-type A/D reset pulse
6	B SELECT	O	AWB Instrumentation line select pulse (blue)
7	G SELECT	O	AWB Instrumentation line select pulse (green)
8	R SELECT	O	AWB Instrumentation line select pulse (red)
9	DECODE D	O	Decode 4 to 10 and expand port with outside IC (4208)
10	DECODE C	O	Decode 4 to 10 and expand port with outside IC (4208)
11	DECODE B	O	Decode 4 to 10 and expand port with outside IC (4208)
12	DECODE A	O	Decode 4 to 10 and expand port with outside IC (4208)
13	NC	—	——
14	HALL SENS	I	Hall element voltage input (Analog input)
15	ZOOM SENS	I	Zoom position detection voltage input (Analog input)
16	AGC CONT	I	AGC voltage input (Analog input)
17	ZOOM KEY	I	Zoom switch voltage input (Analog input)
18	AF A/D 1	I	AF peak hold Data1 input (Analog input)
19	AF A/D 2	I	AF peak hold Data2 input (Analog input)
20	AF A/D 3	I	AF peak hold Data3 input (Analog input)
21	A/D REF(−)	—	Built-in A/D converter the minimum standard voltage (Analog input)
22	A/D REF(+)	—	Built-in A/D converter the minimum standard voltage (Analog input)
23	V_{SS}	—	GND
24	V_{SS}	—	GND
25	MODE B	I	Pull up to SS4.9V
26	NC	—	——
27	MODA	I	Pull down to GND
28	STR A	—	NC Not used
29	E	—	NC Not used
30	STR B	—	NC Not used
31	EXTAL	O	Built-in inverter output for oscillating element
32	NC	—	——

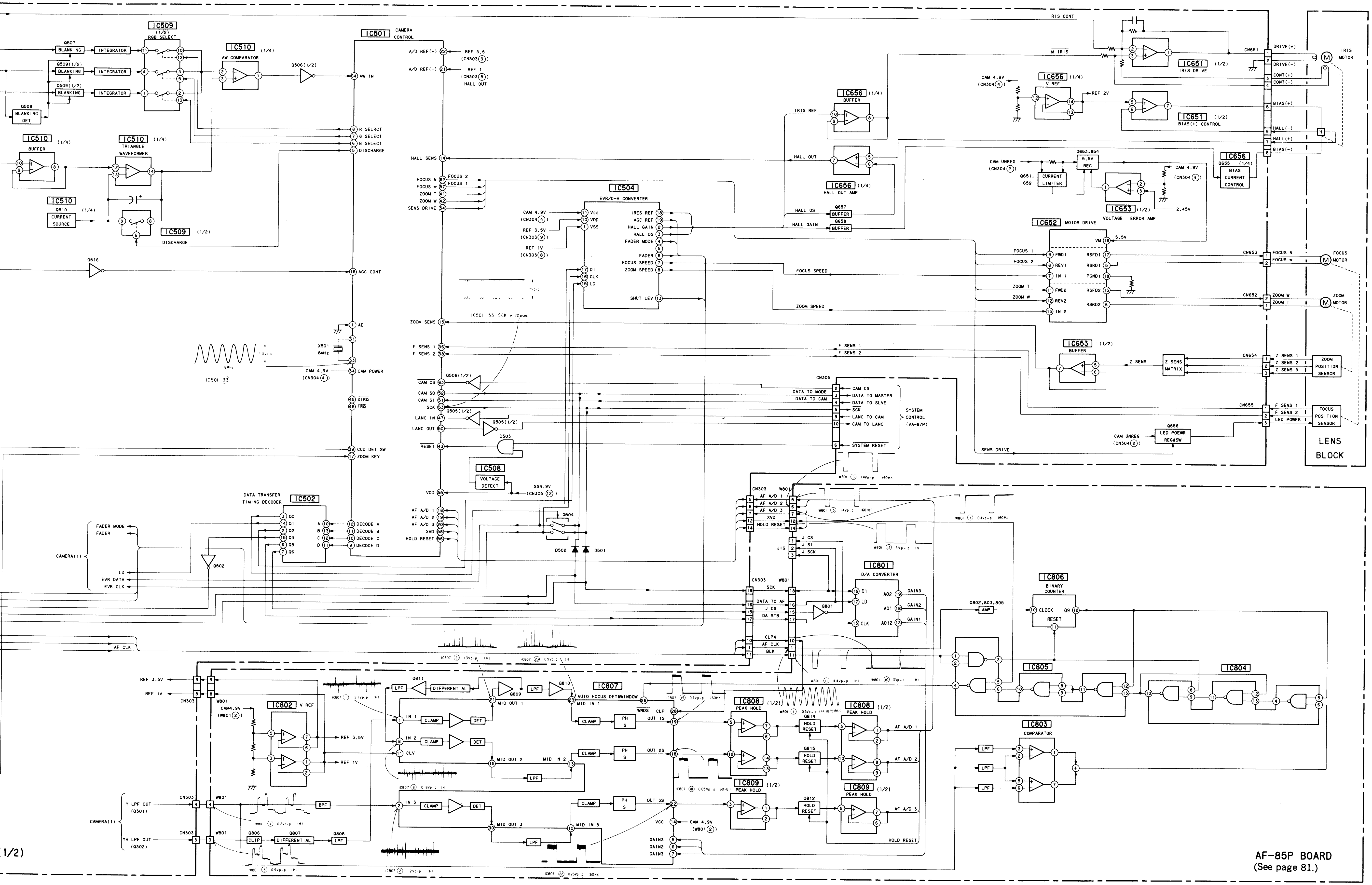
PIN No.	PIN Name	I/O	Function
33	XTAL	I	Built-in inverter input for oscillating element
34	CAM POWER	I	Camera power source rise supervision
35	NC	—	——
36	F SENS1	I	Focus sensor1 voltage entrance (Analog input)
37	PC2	I	Pull up to SS4.9V
38	F SENS2	I	Focus sensor2 voltage entrance (Analog input)
39	CCD DET SW	O	CCD DET switch select
40	$\overline{\text{MAN IRIS}}$	O	NC
41	ZOOM T	O	Zoom motor T-direction rotating designation
42	ZOOM W	O	Zoom motor W-direction rotating designation
43	$\overline{\text{RESET}}$	I	Reset
44	NC	—	——
45	$\overline{\text{XIRQ}}$	I	Pull up to SS4.9V
46	$\overline{\text{IRQ}}$	I	Pull up to SS4.9V
47	LANC IN	I	LANC input
48	NC	—	——
49	V_{SS}	—	GND
50	LANC OUT	O	LANC output
51	CAM SI	I	Serial data input
52	CAM SO	O	Serial data output
53	SCK	O	Serial clock
54	SENS DRIVE	O	AF sensor Luminous pulse output
55	V_{DD}	—	SS4.9V
56	HOLD RESET	O	V Peak Hold reset pulse output
57	FOCUS ∞	O	Focus motor ∞-direction rotating designation
58	XVD	O	V frame for AF distance measurement
59	$\overline{\text{MAN GAIN}}$	O	NC Not used
60	NC	—	——
61	NC	—	——
62	$\overline{\text{FOCUS N}}$	O	Focus motor N-direction rotating designation
63	$\overline{\text{CAMCS}}$	I	Camera chip select input
64	$\overline{\text{AW IN}}$	I	AWB Integration-type A/D converter comparator input

3-5.

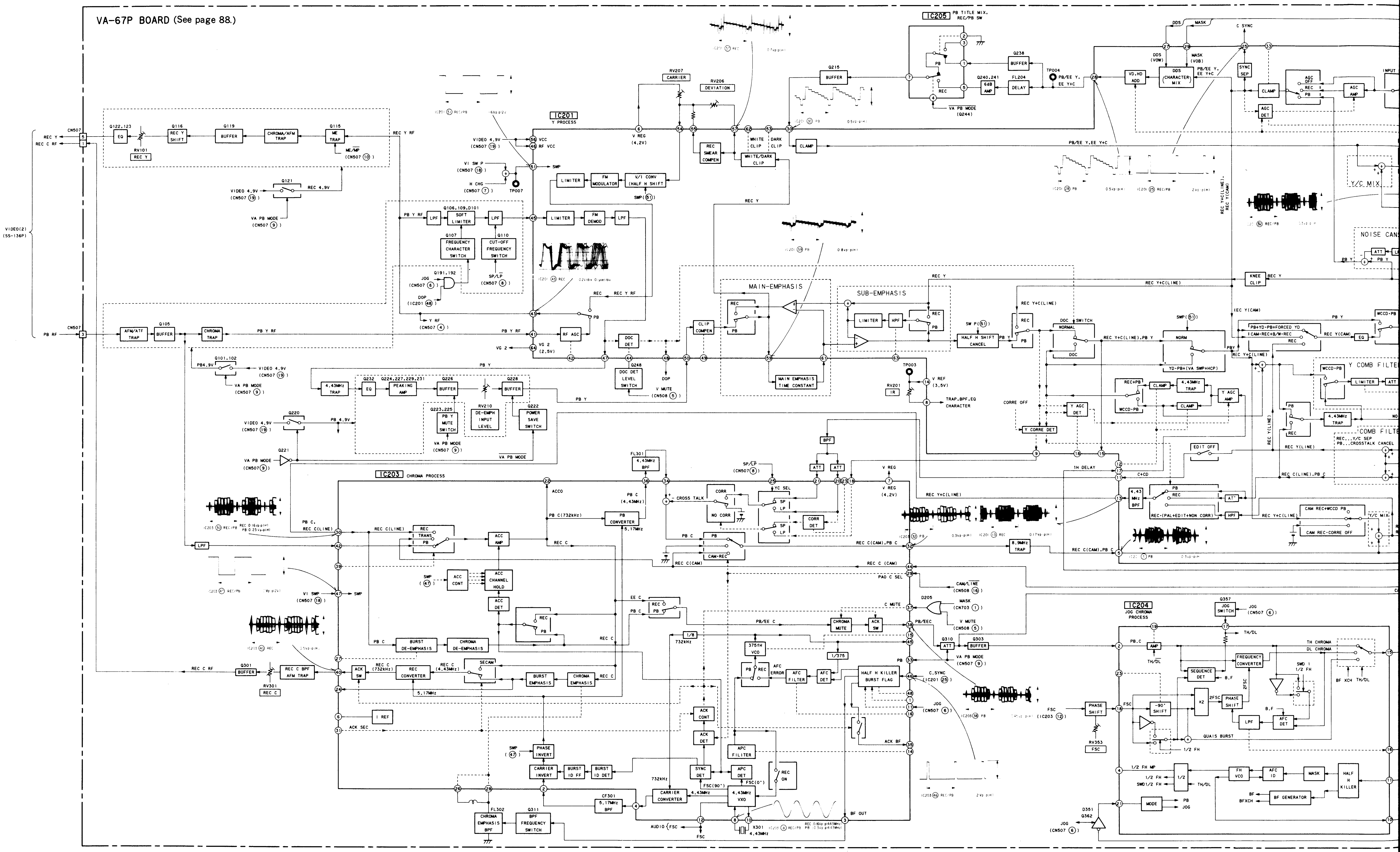
Function
oscillating element
supervision
ance (Analog input)
ance (Analog input)
tating designation
otating designation
output
tput
otating designation
easurement
tating designation
converter comparator input

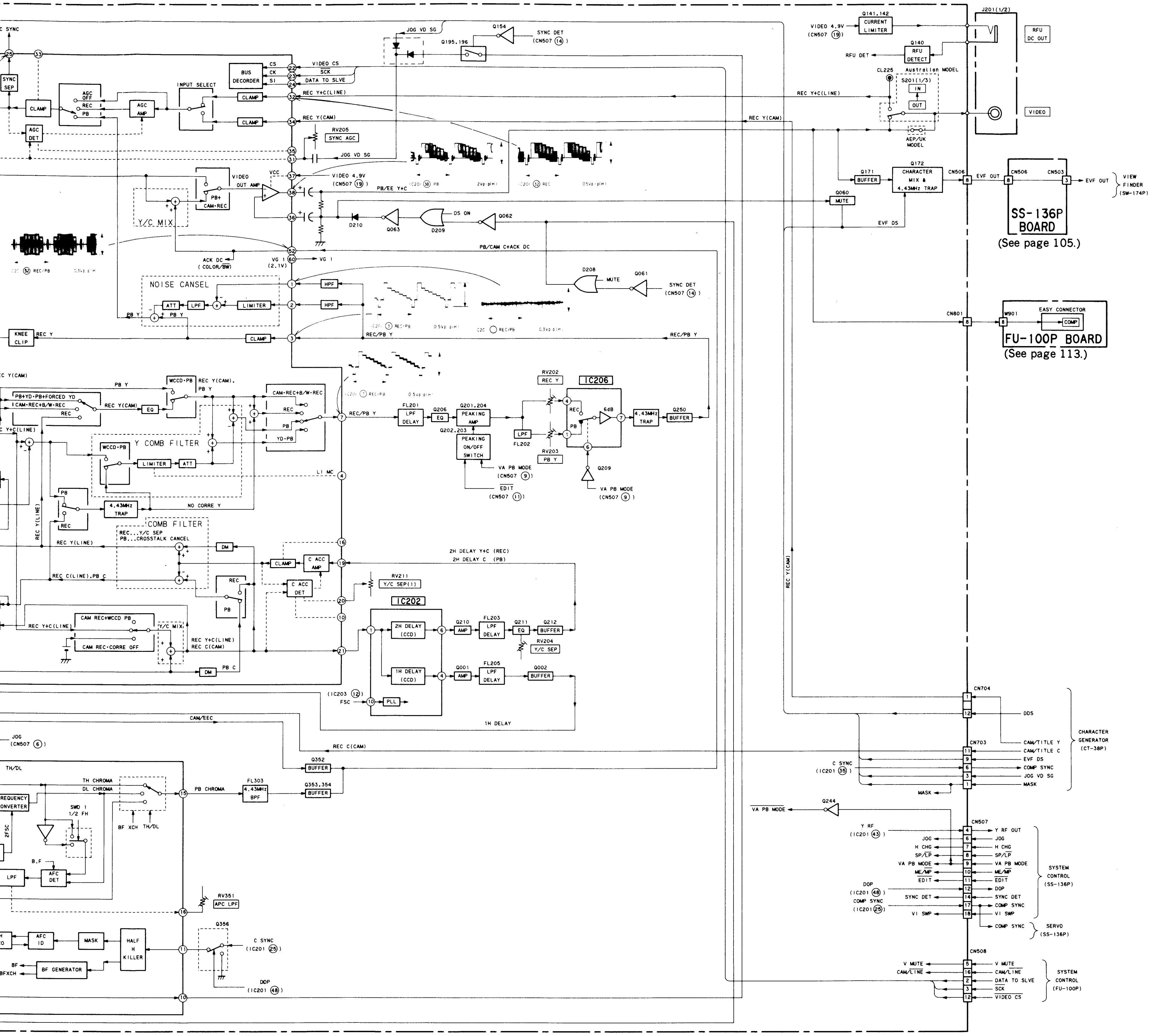
3-5. CAMERA (2) BLOCK DIAGRAM


IC509 (1/2) RGB SELECT
IC510 (1/4) AW COMPARATOR
IC510 (1/4) BUFFER
IC510 (1/4) TRIANGLE WAVEFORMER
IC510 Q510 (1/4) CURRENT SOURCE
IC509 (1/2) DISCHARGE
Q507 BLANKING
Q509(1/2) BLANKING
Q508 BLANKING DET
INTEGRATOR
Q506(1/2)
Q516
IC501 CAMERA CONTROL
IC504 EVR/D-A CONVERTER
IC656 (1/4) BUFFER
IC656 (1/4) HALL OUT AMP
Q657 BUFFER
Q658 BUFFER
IC508 VOLTAGE DETECT
IC502 DATA TRANSFER TIMING DECODER
Q502
Q504
D501
D502
D503
Q505(1/2)
X501 8MHz
IC801 D/A CONVERTER
Q801
IC802 V REF
IC807 AUTO FOCUS DET&WINDOW
IC808 (1/2) PEAK HOLD
IC809 (1/2) PEAK HOLD
Q814 HOLD RESET
Q815 HOLD RESET
Q812 HOLD RESET
Q809
Q810
Q811 DIFFERENTIAL
Q806 CLIP
Q807 DIFFERENTIAL
Q808 LPF
LPF
BPF
CLAMP
DET
PHS
CAMERA(1) (CD-58P)
CN302
CN301
CN303
CN305
CN306
W801
ZOOM SW
WIDE
TELE
ZOOM C
ZOOM W
ZOOM T
SYSTEM CONTROL (VA-67P)
IRIS CONT
CCD DET SW
AGC CONT R
AGC REF
SHUT LEV
STB
DATA
CK
BLK
CLP4
CL
AF CLK
FADER MODE
FADER
LD
EVR DATA
EVR CLK
REF 3.5V
REF 1V
Y LPF OUT (Q301)
YH LPF OUT (Q302)
CAM CS
DATA TO MASTER
DATA TO SLVE
SCK
LANC TO CAM
LANC TO LANC
SYSTEM RESET
FOCUS SPEED
ZOOM SPEED
F SENS 1
F SENS 2
IRIS REF
HALL OUT
HALL OS
HALL GAIN
AF A/D 1
AF A/D 2
AF A/D 3
HOLD RESET
GAIN1
GAIN2
GAIN3
VC-94P BOARD (1/2)
(See page 68.)

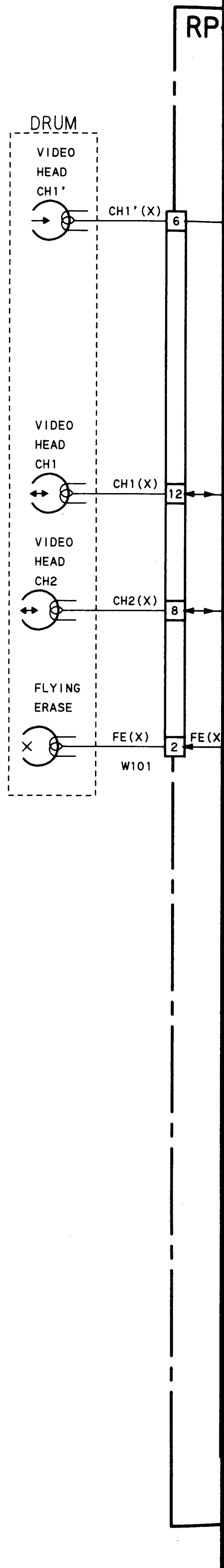

IC509 (1/2) RGB SELECT
Q507 BLANKING
Q509(1/2) BLANKING
Q508 BLANKING DET
INTEGRATOR
IC510 (1/4) AW COMPARATOR
Q506(1/2)
IC510 (1/4) BUFFER
IC510 (1/4) TRIANGLE WAVEFORMER
IC510 Q510 (1/4) CURRENT SOURCE
IC509 (1/2) DISCHARGE
Q516
IC501 CAMERA CONTROL
A/D REF(+)
A/D REF(-)
REF 3.5 (CN303 ⑨)
REF 1 (CN303 ⑧) HALL OUT
AW IN
R SELRCT
G SELECT
B SELECT
DISCHARGE
HALL SENS
FOCUS N
FOCUS =
ZOOM T
ZOOM W
SENS DRIVE
AGC CONT
AE
X501 8MHz
CAM POWER
CAM 4.9V (CN304 ④)
ZOOM SENS
F SENS 1
F SENS 2
CAM CS
CAM SO
CAM SI
SCK
LANC IN
LANC OUT
RESET
XIRQ
IRQ
CCD DET SW
ZOOM KEY
VDD
AF A/D 1
AF A/D 2
AF A/D 3
XVD
HOLD RESET
DECODE A
DECODE B
DECODE C
DECODE D
IC501 33
IC501 53 SCK
Q505(1/2)
D503
IC508 VOLTAGE DETECT
S54.9V (CN305 ⑫)
Q504
D502
D501
IC502 DATA TRANSFER TIMING DECODER
Q502
FADER MODE
FADER
CAMERA(1)
LD
EVR DATA
EVR CLK
AF CLK
IC504 EVR/D-A CONVERTER
IRES REF
AGC REF
HALL GAIN
HALL OS
FADER MODE
FOCUS SPEED
ZOOM SPEED
SHUT LEV
Vcc
VDD
VSS
DI
CLK
LD
CAM 4.9V (CN304 ④)
REF 3.5V (CN303 ⑨)
REF 1V (CN303 ⑧)
IRIS CONT
M IRIS
IRIS REF
IC656 (1/4) BUFFER
IC656 (1/4) HALL OUT AMP
HALL OUT
HALL OS
HALL GAIN
Q657 BUFFER
Q658 BUFFER
IC656 (1/4) V REF
REF 2V
IC651 (1/2) IRIS DRIVE
IC651 (1/2) BIAS(+) CONTROL
IC656 Q655 (1/4) BIAS CURRENT CONTROL
CAM UNREG (CN304 ②)
Q651, 659 CURRENT LIMITER
Q653,654 5.5V REG
IC653 (1/2) VOLTAGE ERROR AMP
2.45V
IC652 MOTOR DRIVE
VM
5.5V
FWD1
REV1
IN 1
FWD2
REV2
IN 2
RSFD1
RSRD1
PGND1
RSFD2
RSRD2
FOCUS SPEED
ZOOM SPEED
IC653 (1/2) BUFFER
Z SENS
Z SENS MATRIX
CN651
DRIVE(+)
DRIVE(-)
CONT(+)
CONT(-)
BIAS(+)
HALL(-)
HALL(+)
BIAS(-)
IRIS MOTOR
CN653
FOCUS N
FOCUS MOTOR
CN652
ZOOM W
ZOOM T
ZOOM MOTOR
CN654
Z SENS 1
Z SENS 2
Z SENS 3
ZOOM POSITION SENSOR
CN655
F SENS 1
F SENS 2
LED POWER
FOCUS POSITION SENSOR
Q656 LED POEWR REG&SW
LENS BLOCK
SENS DRIVE
CN305
DATA TO MODE
DATA TO CAM
CAM CS
DATA TO MASTER
DATA TO SLVE
SCK
LANC TO CAM
CAM TO LANC
SYSTEM RESET
SYSTEM CONTROL (VA-67P)
CN303
W801
JIG
J CS
J SI
J SCK
DATA TO AF
DA STB
CLP4
BLK
IC801 D/A CONVERTER
GAIN1
GAIN2
GAIN3
Q801
IC806 BINARY COUNTER
CLOCK
RESET
Q802,803,805 AMP
IC805
IC804
IC803 COMPARATOR
LPF
REF 3.5V
REF 1V
IC802 V REF
CAM4.9V (W801 ②)
Q811 DIFFERENTIAL
Q809
Q810
IC807 AUTO FOCUS DET&WINDOW
MID IN 1
MID OUT 1
MID OUT 2
MID IN 2
MID OUT 3
MID IN 3
IN 1
IN 2
IN 3
CLV
CLAMP
DET
PH S
OUT 1S
OUT 2S
OUT 3S
WNDS
CLP
VCC
CAM 4.9V (W801 ②)
IC808 (1/2) PEAK HOLD
IC809 (1/2) PEAK HOLD
Q814 HOLD RESET
Q815 HOLD RESET
Q812 HOLD RESET
AF A/D 1
AF A/D 2
AF A/D 3
HOLD RESET
BPF
Y LPF OUT (Q301)
YH LPF OUT (Q302)
Q806 CLIP
Q807 DIFFERENTIAL
Q808 LPF
(1/2)
AF-85P BOARD (See page 81.)

3-7. VIDEO (1) BLOCK DIAGRAM

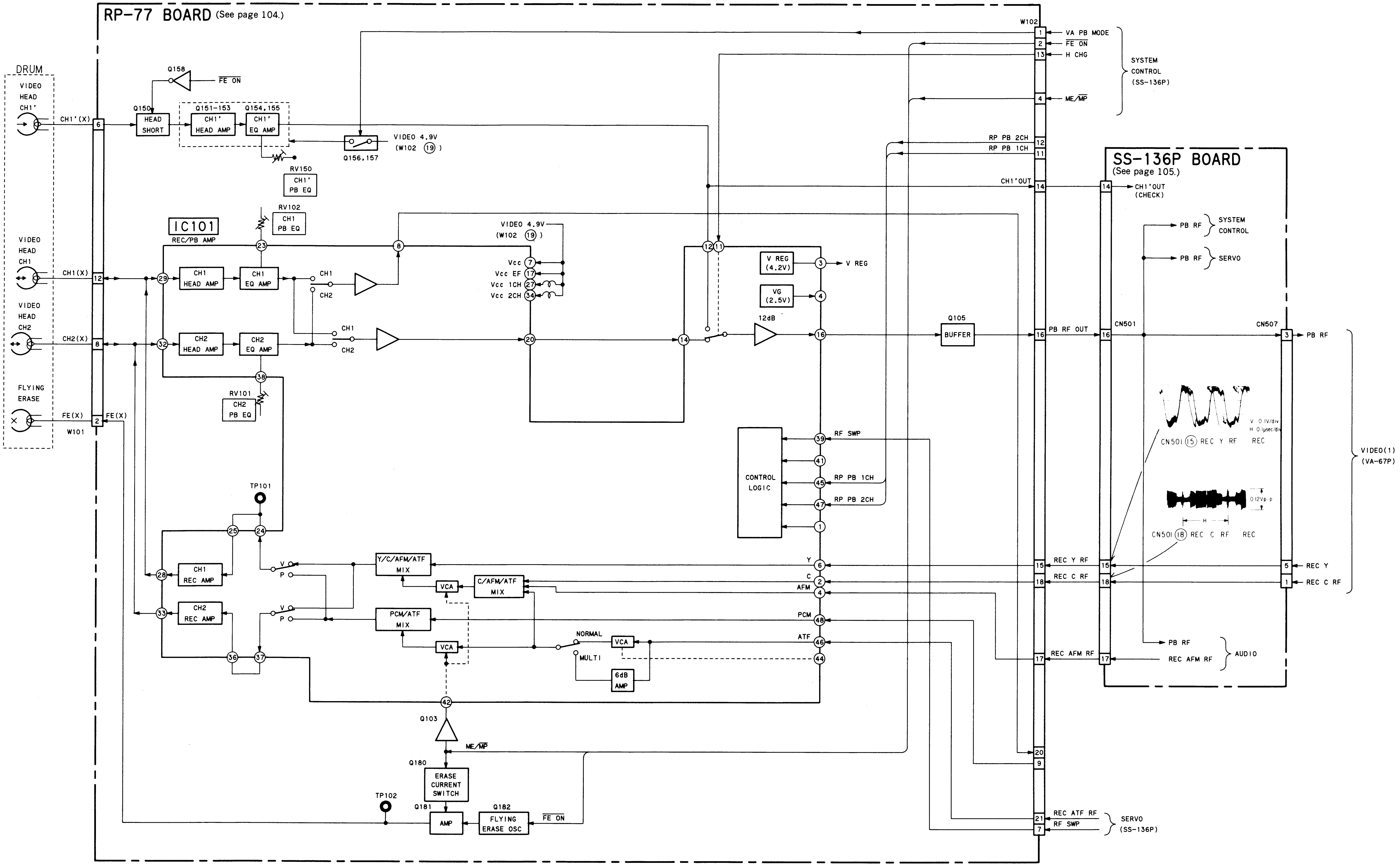

VA-67P BOARD (See page 88.)
VIDEO(2) (SS-136P)
CN507
REC Y
REC C RF
PB RF
Q122,123 EQ
RV101 REC Y
Q116 REC Y SHIFT
Q119 BUFFER
CHROMA/AFM TRAP
Q115 ME TRAP
ME/MP (CN507 ⑩)
REC Y RF
Q121
VIDEO 4.9V (CN507 ⑲)
VA PB MODE (CN507 ⑨)
PB Y RF
Q106,109,D101 SOFT LIMITER
LPF
Q107 FREQUENCY CHARACTER SWITCH
Q110 CUT-OFF FREQUENCY SWITCH
Q191,192
JOG (CN507 ⑥)
DOP (IC201 ㊽)
SP/LP (CN507 ⑧)
Y RF (CN507 ④)
AFM/ATF TRAP
Q105 BUFFER
CHROMA TRAP
PB Y RF
Q101,102
PB4.9V
Q232 EQ
Q224,227,229,231 PEAKING AMP
Q226 BUFFER
RV210 DE-EMPH INPUT LEVEL
Q228 BUFFER
Q222 POWER SAVE SWITCH
Q223,225 PB Y MUTE SWITCH
4.43MHz TRAP
Q220
Q221
IC201 Y PROCESS
VIDEO 4.9V (CN507 ⑲)
VCC
RF VCC
V1 SW P (CN507 ⑱)
H CHG (CN507 ⑦)
TP007
SWP
V REG (4.2V)
RV207 CARRIER
RV206 DEVIATION
LIMITER
FM MODULATOR
V/I CONV (HALF H SHIFT)
FM DEMOD
WHITE CLIP
DARK CLIP
WHITE/DARK CLIP
REC SMEAR COMPEN
CLAMP
RF AGC
VG 2 (2.5V)
DOC DET
Q248 DOC DET LEVEL SWITCH
DOP
V MUTE (CN508 ⑤)
CLIP COMPEN
MAIN-EMPHASIS
MAIN EMPHASIS TIME CONSTANT
SUB-EMPHASIS
HPF
HALF H SHIFT CANCEL
TP003
V REF (3.5V)
RV201 IR
TRAP,BPF,EQ CHARACTER
IC205 PB TITLE MIX, REC/PB SW
Q215 BUFFER
Q238 BUFFER
Q240,241 6dB AMP
FL204 DELAY
TP004 PB/EE Y, EE Y+C
VA PB MODE (Q244)
VD,HD ADD
DDS (VOW)
DDS (CHARACTER) MIX
MASK (VOB)
SYNC SEP
C SYNC
CLAMP
AGC DET
AGC OFF
AGC AMP
INPUT
Y/C MIX
NOISE CANCEL
KNEE CLIP
DOC SWITCH
NORMAL
YD·PB+(VA SWP+HCP)
Y AGC DET
Y AGC AMP
Y CORRE DET
CORRE OFF
4.43MHz TRAP
Y COMB FILTER
COMB FILTER
REC...Y/C SEP PB...CROSSTALK CANCEL
EDIT OFF
TH DELAY
4.43 MHz BPF
REC·(PAL+EDIT+NON CORR)
CAM REC+WCCD PB
CAM REC·CORRE OFF
8.9MHz TRAP
IC203 CHROMA PROCESS
FL301 4.43MHz BPF
ACCO
PB C (4.43MHz)
PB C (732kHz)
PB CONVERTER
5.17MHz
CROSS TALK
CORR
NO CORR
YC SEL
CORR DET
ATT
BPF
REC TRANS
ACC AMP
ACC CONT
ACC CHANNEL HOLD
ACC DET
BURST DE-EMPHASIS
CHROMA DE-EMPHASIS
REC CONVERTER
SECAM
BURST EMPHASIS
CHROMA EMPHASIS
ACK SW
Q301 BUFFER
REC C BPF AFM TRAP
RV301 REC C
I REF
ACK SEC
PHASE INVERT
CARRIER INVERT
BURST ID FF
BURST ID DET
CF301 5.17MHz BPF
CARRIER CONVERTER
FL302 CHROMA EMPHASIS BPF
Q311 BPF FREQUENCY SWITCH
ACK CONT
ACK DET
SYNC DET
APC DET
APC FILITER
4.43MHz VXO
X301 4.43MHz
AUDIO FSC
BF OUT
REC ON
3751H VCO
AFC FILTER
AFC DET
1/375
1/8
732kHz
CHROMA MUTE
ACK SW
HALF H KILLER BURST FLAG
C MUTE
PAQ C SEL
CAM/LINE (CN508 ⑯)
D205
MASK (CN703 ①)
V MUTE (CN508 ⑤)
Q310 ATT
Q303 BUFFER
VA PB MODE (CN507 ⑨)
C.SYNC (IC201 ㉕)
JOG (CN507 ⑥)
FSC (IC203 ⑫)
IC204 JOG CHROMA PROCESS
Q357 JOG SWITCH
JOG (CN507 ⑥)
TH/DL
TH CHROMA
DL CHROMA
FREQUENCY CONVERTER
SEQUENCE DET
PHASE SHIFT
RV353 FSC
-90° SHIFT
X2
2FSC PHASE SHIFT
LPF
AFC DET
QUAIS BURST
1/2 FH
1/2 FH MP
SWD1/2 FH
FH VCO
AFC ID
MASK
HALF H KILLER
BF XCH
BF GENERATOR
MODE
D351 Q362
JOG (CN507 ⑥)


C SYNC
SYNC SEP
AGC DET
CLAMP
AGC OFF
REC
PB
AGC AMP
INPUT SELECT
BUS DECORDER
CS
CK
SI
VIDEO CS
SCK
DATA TO SLVE
REC Y+C(LINE)
REC Y(CAM)
RV205
SYNC AGC
JOG VD SG
Q195,196
Q154
SYNC DET
(CN507 ⑭)
VIDEO OUT AMP
VCC
VIDEO 4.9V
(CN507 ⑲)
PB/EE Y+C
PB+ CAM•REC
Y/C MIX
D210
Q063
D209
DS ON
Q062
ACK DC
(COLOR/BW)
VG 1
(2.1V)
PB/CAM C+ACK DC
D208
MUTE
Q061
NOISE CANSEL
ATT
LPF
LIMITER
HPF
PB Y
KNEE CLIP
REC Y
REC/PB Y
REC Y(CAM)
PB+YD•PB+FORCED YD
CAM•REC+B/W•REC
WCCD•PB
EQ
CAM•REC+B/W•REC
YD•PB
Y COMB FILTER
REC Y+C(LINE)
LI MC
4.43MHz TRAP
NO CORRE Y
REC Y(LINE)
COMB FILTER
REC...Y/C SEP
PB...CROSSTALK CANCEL
DM
REC C(LINE),PB C
CLAMP
C ACC AMP
C ACC DET
CAM REC+WCCD PB
CAM REC•CORRE OFF
Y/C MIX
REC Y+C(LINE)
REC C(CAM)
PB C
FL201
LPF DELAY
Q206
EQ
Q201,204
PEAKING AMP
Q202,203
PEAKING ON/OFF SWITCH
VA PB MODE
(CN507 ⑨)
EDIT
(CN507 ⑪)
RV202
REC Y
IC206
6dB
FL202
RV203
PB Y
Q209
4.43MHz TRAP
Q250
BUFFER
2H DELAY Y+C (REC)
2H DELAY C (PB)
RV211
Y/C SEP(1)
IC202
2H DELAY (CCD)
1H DELAY (CCD)
Q210
AMP
FL203
LPF DELAY
Q211
EQ
Q212
BUFFER
RV204
Y/C SEP
Q001
FL205
Q002
(IC203 ⑫)
FSC
PLL
1H DELAY
CAM/EEC
JOG
(CN507 ⑥)
REC C(CAM)
Q352
BUFFER
TH/DL
TH CHROMA
DL CHROMA
FREQUENCY CONVERTER
SWD 1
1/2 FH
2FSC
B.F
AFC DET
LPF
BF XCH
TH/DL
PB CHROMA
FL303
4.43MHz BPF
Q353,354
BUFFER
RV351
APC LPF
AFC ID
MASK
HALF H KILLER
BF GENERATOR
BF
BFXCH
Q356
C SYNC
(IC201 ㉕)
DDP
(IC201 ㊽)
Q141,142
CURRENT LIMITER
(CN507 ⑲)
Q140
RFU DETECT
RFU DET
CL225
Australian MODEL
S201(1/3)
IN
OUT
AEP/UK MODEL
J201(1/2)
RFU DC OUT
VIDEO
Q171
BUFFER
Q172
CHARACTER MIX & 4.43MHz TRAP
CN506
EVF OUT
Q060
MUTE
EVF DS
CN506
CN503
SS-136P BOARD
(See page 105.)
VIEW FINDER
(SW-174P)
CN801
W901
EASY CONNECTOR
COMP
FU-100P BOARD
(See page 113.)
REC Y(CAM)
CN704
DDS
CN703
CAM/TITLE Y
CAM/TITLE C
EVF DS
COMP SYNC
JOG VD SG
MASK
CHARACTER GENERATOR
(CT-38P)
C SYNC
(IC201 ㉟)
Q244
VA PB MODE
CN507
Y RF
(IC201 ㊸)
Y RF OUT
JOG
H CHG
SP/LP
VA PB MODE
ME/MP
EDIT
DDP
(IC201 ㊽)
COMP SYNC
(IC201 ㉕)
SYNC DET
VI SWP
SYSTEM CONTROL
(SS-136P)
SERVO
(SS-136P)
CN508
V MUTE
CAM/LINE
DATA TO SLVE
SCK
VIDEO CS
SYSTEM CONTROL
(FU-100P)

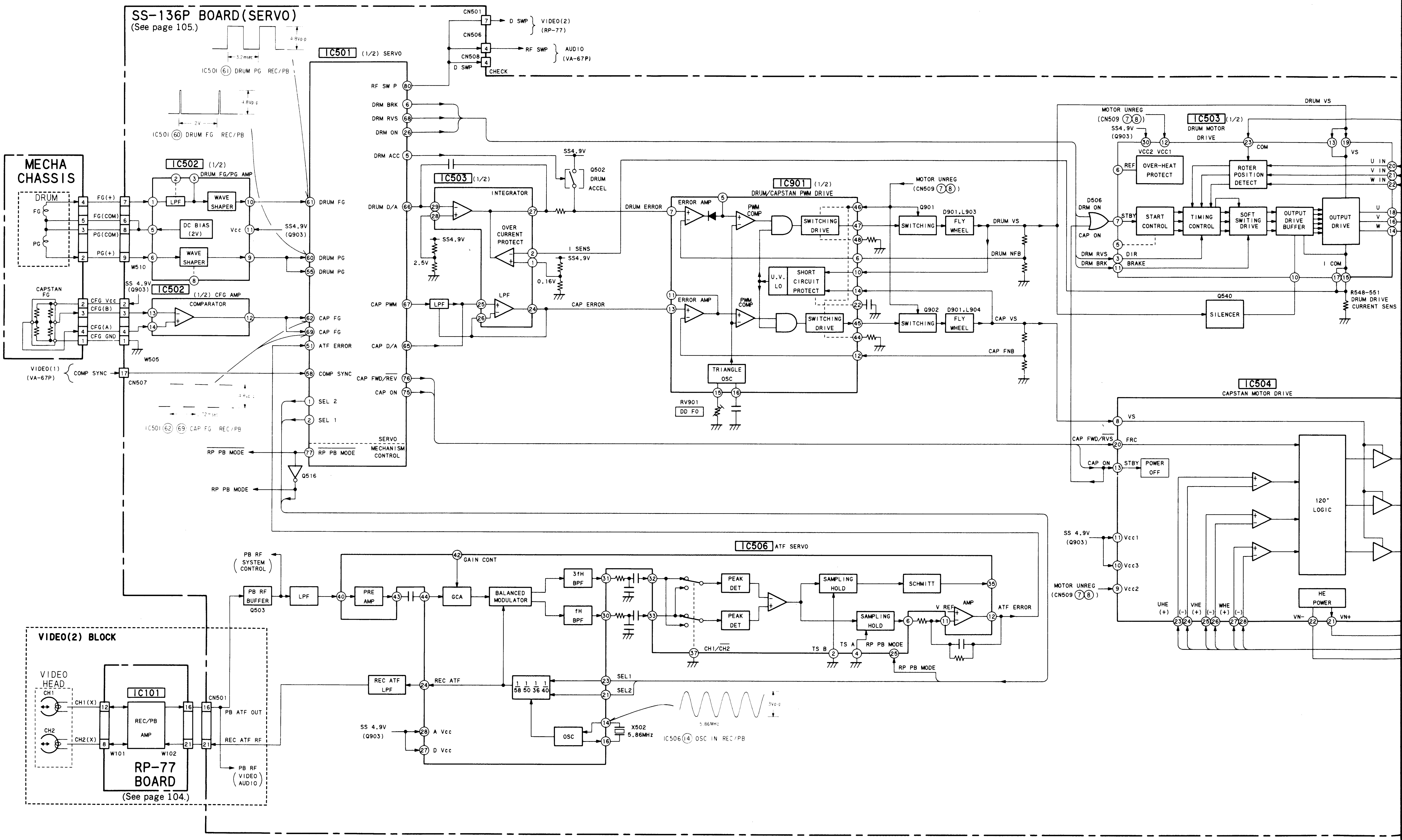
3-8. VIDEO (2) BLOCK D

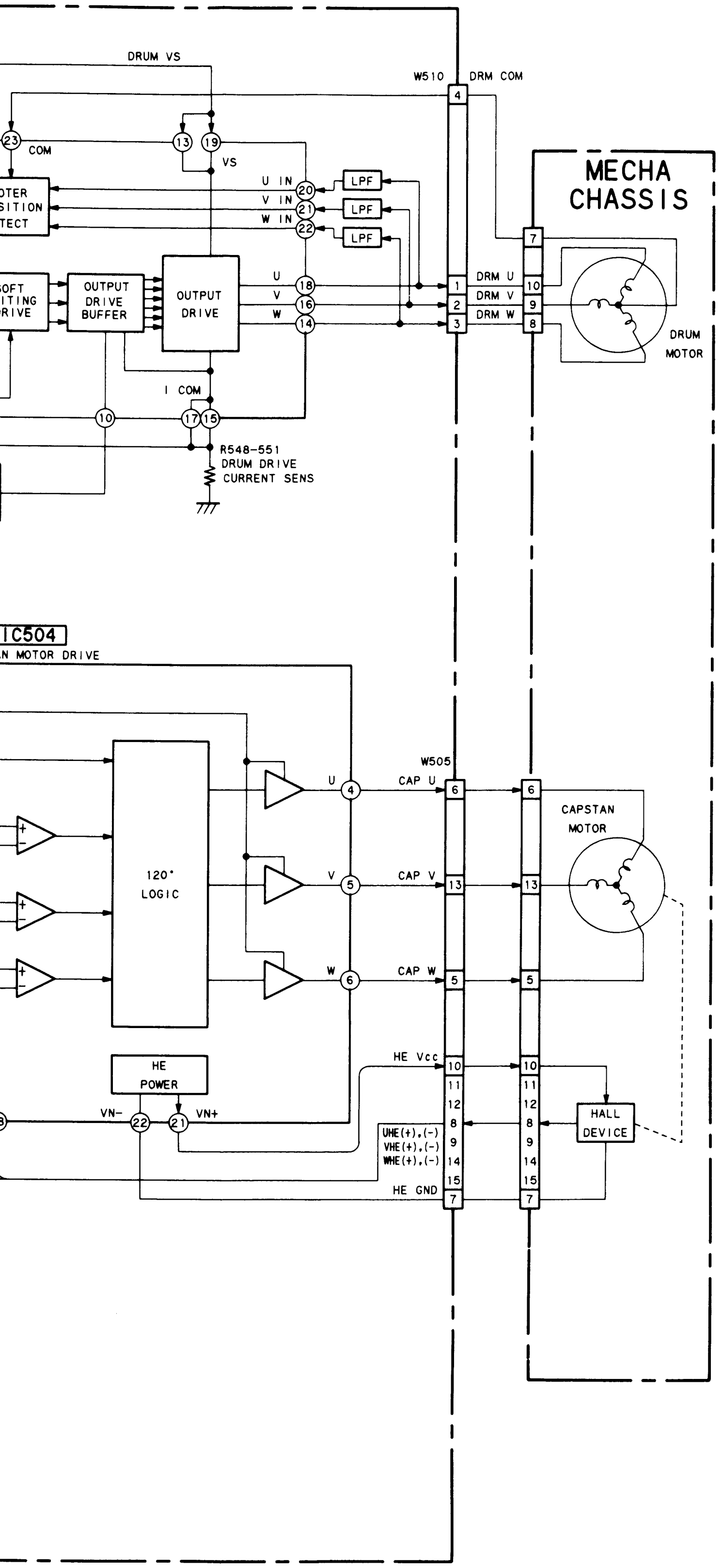

RP
DRUM
VIDEO
HEAD
CH1'
CH1'(X)
6
VIDEO
HEAD
CH1
CH1(X)
12
VIDEO
HEAD
CH2
CH2(X)
8
FLYING
ERASE
FE(X)
2
FE(X
W101

3-8. VIDEO (2) BLOCK DIAGRAM


RP-77 BOARD (See page 104.)
DRUM
VIDEO HEAD CH1'
VIDEO HEAD CH1
VIDEO HEAD CH2
FLYING ERASE
CH1'(X)
CH1(X)
CH2(X)
FE(X)
W101
Q158
FE ON
Q150
HEAD SHORT
Q151-153
CH1' HEAD AMP
Q154,155
CH1' EQ AMP
Q156,157
VIDEO 4.9V (W102 ⑲)
RV150 CH1' PB EQ
RV102 CH1 PB EQ
IC101
REC/PB AMP
CH1 HEAD AMP
CH1 EQ AMP
CH2 HEAD AMP
CH2 EQ AMP
RV101 CH2 PB EQ
CH1
CH2
Vcc
Vcc EF
Vcc 1CH
Vcc 2CH
V REG (4.2V)
V REG
VG (2.5V)
12dB
Q105
BUFFER
CONTROL LOGIC
RF SWP
RP PB 1CH
RP PB 2CH
TP101
CH1 REC AMP
CH2 REC AMP
Y/C/AFM/ATF MIX
C/AFM/ATF MIX
PCM/ATF MIX
VCA
NORMAL
MULTI
6dB AMP
Y
C
AFM
PCM
ATF
Q103
ME/MP
Q180
ERASE CURRENT SWITCH
TP102
Q181
AMP
Q182
FLYING ERASE OSC
W102
VA PB MODE
H CHG
SYSTEM CONTROL (SS-136P)
CH1'OUT
PB RF OUT
REC Y RF
REC C RF
REC AFM RF
REC ATF RF
RF SWP
SERVO (SS-136P)
SS-136P BOARD (See page 105.)
CH1'OUT (CHECK)
PB RF
SYSTEM CONTROL
SERVO
CN501
CN507
V 0.1V/div
H 0.1μsec/div
CN501 ⑮ REC Y RF REC
0.12Vp-p
H
CN501 ⑱ REC C RF REC
REC Y
REC C RF
AUDIO
VIDEO(1) (VA-67P)

3-9. SERVO BLOCK DIAGRAM


SS-136P BOARD(SERVO)
(See page 105.)
MECHA CHASSIS
DRUM
FG
PG
CAPSTAN FG
IC501 (1/2) SERVO
IC502 (1/2) DRUM FG/PG AMP
IC502 (1/2) CFG AMP
COMPARATOR
LPF
WAVE SHAPER
DC BIAS (2V)
IC501 ⑥① DRUM PG REC/PB
IC501 ⑥⓪ DRUM FG REC/PB
IC501 ⑥② ⑥⑨ CAP FG REC/PB
4.8Vp-p
3.2msec
2V
FG(+)
FG(COM)
PG(COM)
PG(+)
CFG Vcc
CFG(B)
CFG(A)
CFG GND
W510
W505
CN507
SS 4.9V (Q903)
VIDEO(1) (VA-67P)
COMP SYNC
CN501
CN506
CN508
D SWP
RF SWP
VIDEO(2) (RP-77)
AUDIO (VA-67P)
CHECK
RF SW P
DRM BRK
DRM RVS
DRM ON
DRM ACC
DRUM D/A
CAP PWM
CAP D/A
CAP FWD/REV
CAP ON
DRUM FG
DRUM PG
CAP FG
ATF ERROR
COMP SYNC
SEL 2
SEL 1
RP PB MODE
SERVO MECHANISM CONTROL
Q516
IC503 (1/2)
INTEGRATOR
OVER CURRENT PROTECT
LPF
SS4.9V
2.5V
0.16V
I SENS
Q502 DRUM ACCEL
DRUM ERROR
CAP ERROR
IC901 (1/2)
DRUM/CAPSTAN PWM DRIVE
ERROR AMP
PWM COMP
SWITCHING DRIVE
U.V. LO
SHORT CIRCUIT PROTECT
TRIANGLE OSC
RV901 DD FO
MOTOR UNREG (CN509 ⑦⑧)
Q901
Q902
SWITCHING
D901,L903
D901,L904
FLY WHEEL
DRUM VS
DRUM NFB
CAP VS
CAP FNB
IC503 (1/2) DRUM MOTOR DRIVE
VCC2 VCC1
REF
OVER-HEAT PROTECT
ROTER POSITION DETECT
COM
VS
U IN
V IN
W IN
D506
DRM ON
CAP ON
STBY
START CONTROL
TIMING CONTROL
SOFT SWITING DRIVE
OUTPUT DRIVE BUFFER
OUTPUT DRIVE
U
V
W
DIR
BRAKE
DRM RVS
DRM BRK
I COM
R548-551 DRUM DRIVE CURRENT SENS
Q540
SILENCER
IC504
CAPSTAN MOTOR DRIVE
CAP FWD/RVS
FRC
STBY
POWER OFF
120° LOGIC
Vcc1
Vcc3
Vcc2
HE POWER
UHE (+) (-)
VHE (+) (-)
WHE (+) (-)
VN-
VN+
IC506 ATF SERVO
PB RF (SYSTEM CONTROL)
PB RF BUFFER Q503
PRE AMP
GCA
GAIN CONT
BALANCED MODULATOR
3fH BPF
fH BPF
PEAK DET
SAMPLING HOLD
SCHMITT
AMP
V REF
CH1/CH2
TS A
TS B
RP PB MODE
REC ATF LPF
REC ATF
SEL1
SEL2
OSC
X502 5.86MHz
5.86MHz
3Vp-p
IC506 ⑭ OSC IN REC/PB
SS 4.9V (Q903)
A Vcc
D Vcc
VIDEO(2) BLOCK
VIDEO HEAD
CH1
CH2
CH1(X)
CH2(X)
IC101
REC/PB AMP
W101
W102
RP-77 BOARD
(See page 104.)
PB ATF OUT
REC ATF RF
PB RF (VIDEO AUDIO)


DRUM VS
W510
DRM COM
COM
VS
U IN
V IN
W IN
LPF
LPF
LPF
OTER
SITION
TECT
SOFT
ITING
RIVE
OUTPUT
DRIVE
BUFFER
OUTPUT
DRIVE
U
V
W
DRM U
DRM V
DRM W
MECHA
CHASSIS
DRUM
MOTOR
I COM
R548-551
DRUM DRIVE
CURRENT SENS
IC504
N MOTOR DRIVE
120°
LOGIC
HE
POWER
VN-
VN+
U
V
W
W505
CAP U
CAP V
CAP W
CAPSTAN
MOTOR
HE Vcc
UHE(+),(-)
VHE(+),(-)
WHE(+),(-)
HE GND
HALL
DEVICE

3-11. SERVO, SYSTEM CONTROL SYSTEM TERMINAL FUNCTION SS-136P BOARD IC501 (CXP-80116)

PIN No.	Signal Name	I/O	Function	Connection
1	SEL2	O	ATF REF PILOT signal frequency control ATF REF PILOT f_1 f_2 f_3 f_4 SEL 1 H L H L SEL 2 H H L L	ATF IC CXA1204Q
2	SEL1	O		
3	DS ON	O	Data Screen ON/OFF control Data Screen On and Data Screen key are selected with "H"	VIDEO block
4	VI SWP	O	RF SWP using for Vidoe system Normally, same as RF SWP. When using 'CH only "H" 3Head is used.	VIDEO block
5	DRM ACC	O	DRUM motor acceleration signal Acceleration is selected with "H"	To Drum motor driver CXA8006M
6	DRM BLK	O	DRUM motor brake signal Brake is selected with "H"	To Drum motor driver CXA8006M
7	JOG	O	Normal/JOG mode recognition signal JOG is selected with "H"	R/P Amp VIDEO block
8	FE RA	—	Not used	——
9	FE RS	—		
10	H CHG	O	2CH or 'CH select signal 'CH is selected with "H" Only 3Head is used	VIDEO system R/P Amp
11	SYSTEM SYNC	O	Internal bus communication synchronizing signal (V synchronization)	Mode controller
12	SP/$\overline{\text{LP}}$	O	SP/LP mode recognition signal SP mode is selected with "H"	R/P Amp VIDEO/AUDIO block
13	$\overline{\text{NOR}}$/Hi8	O	Not used Normally, "L"	——
14	VA PB MODE	O	VIDEO/AUDIO system REC/PB mode select PB mode is selected with "H"	VIDEO/AUDIO block
15	UNLOAD	O	Loading motor control signal OFF LOADING UNLOADING BRAKE LOAD L H L H UNLOAD L L H H	TO loading motor
16	LOAD	O		
17	CAP ON2	—	Not used	——
18	AF REC	—	Not used	——
19	ME/$\overline{\text{MP}}$	I	ME/MP tape recognition input ME tape is selected with "H"	To CC board
20	MP HG	I	MP HG tape recognition input MPHG is selected with "L"	To CC board
21	REC PROOF	I	REC PROOF recognition input REC PROOF is selected with "L"	To CC board
22	MODE SW2	I	Mechanical position input	To CC board
23	MODE SW1	I		
24	MODE SW0	I		
25	$\overline{\text{CC DOWN}}$	I	Cassette IN switch input Cassette IN is selected with "L"	To CC board
26	DRM ON	O	Drum motor drive control Motor Drive is selected with "H"	To Drum motor driver CXA8006M
27	T/E LED	O	LED for tape top end sensor drive control LED Flashing is selected with "H"	To CC board
28	$\overline{\text{REEL LED}}$	O	LED for reel sensor drive control LED Flashing is selected with "L"	To CC board

PIN No.	Signal Name	I/O	Function	Connection
29		—	Not used	——
30	$\overline{\text{EDIT}}$	O	EDIT ON/OFF control EDIT is selected with "L"and interlocked with EDIT key.	To VIDEO block
31	SS GND	—	—	——
32	$\overline{\text{SYSTEM}}$ $\overline{\text{RESET}}$	I	Control by mode controller with RESET terminal of this microcomputer RESET is selected "L"	Mode controller and others
33	SS GND	—	—	——
34	16M OUT	O	Crystal connecting terminal for system clock oscillation (16 MHz)	X'tal (X501)
35	16M IN	I		
36	$\overline{\text{COSMO CS}}$	I	Select signal of this microcomputer from internal bus communication mode controller Selected with "L"	Mode controller
37	DATA TO SLVE	I	Serial data input terminal	Mode controller
38	DATA TO MSTR	O	Serial data output terminal	Mode controller
39	$\overline{\text{SCK}}$	I	Serial clock input terminal	Mode controller
40	PCM ACT	—	Not used	——
41	Hi8 DET	—	Not used Normally, "L"	——
42	S IN	—	Not used Normally, "H"	——
43	$\overline{\text{MONO}}$/ST DET	I	AFM monaural/stereo recognition input Stereo is selected "H" (Only stereo correspondence model)	To AUDIO block
44	TOP SENS	I	Tape top end sensor input TOP is selected with "H" END is selected with "H"	To CC board
45	END SENS	I		
46	T REEL FG	I	Reel sensor input Take up side	To CC board
47	S REEL FG	I	Reel sensor input Supply side	
48	BATT SENS	I	Battery input voltage sense	——
49	DEW SENS	I	DEW SENSOR input	DEW SENSOR
50	THERMISTOR	I	THERMISTOR input (This model: fixed value)	
51	ATF ERROR	I	ATF errer (ATF LOCK error) input, A/D input terminal	IC506⑫
52	SS GND	—	—	——
53 54	SS 4.9V		Power source supply terminal	
55	DRM PG	I	DRUM PG input, FRC (high precision timer) capture input terminal	IC502 ⑨
56	$\overline{\text{HiFi}}$/WIND	I	MIC HiFi/WIND input. HiFi is selected with "L", WIND is selected with "H"	To AUDIO block
57	CLOG	I	Clog detection signal input. CLOG is selected with "H"	Q510 ©
58	COMP SYNC	I	Composite trunk (composite synchronizing signal) input. (built-inV SYNC separator)	To VIDEO block
59	SP/$\overline{\text{LP}}$ DET	I	SP/LP recognition signal input	Q511 ©

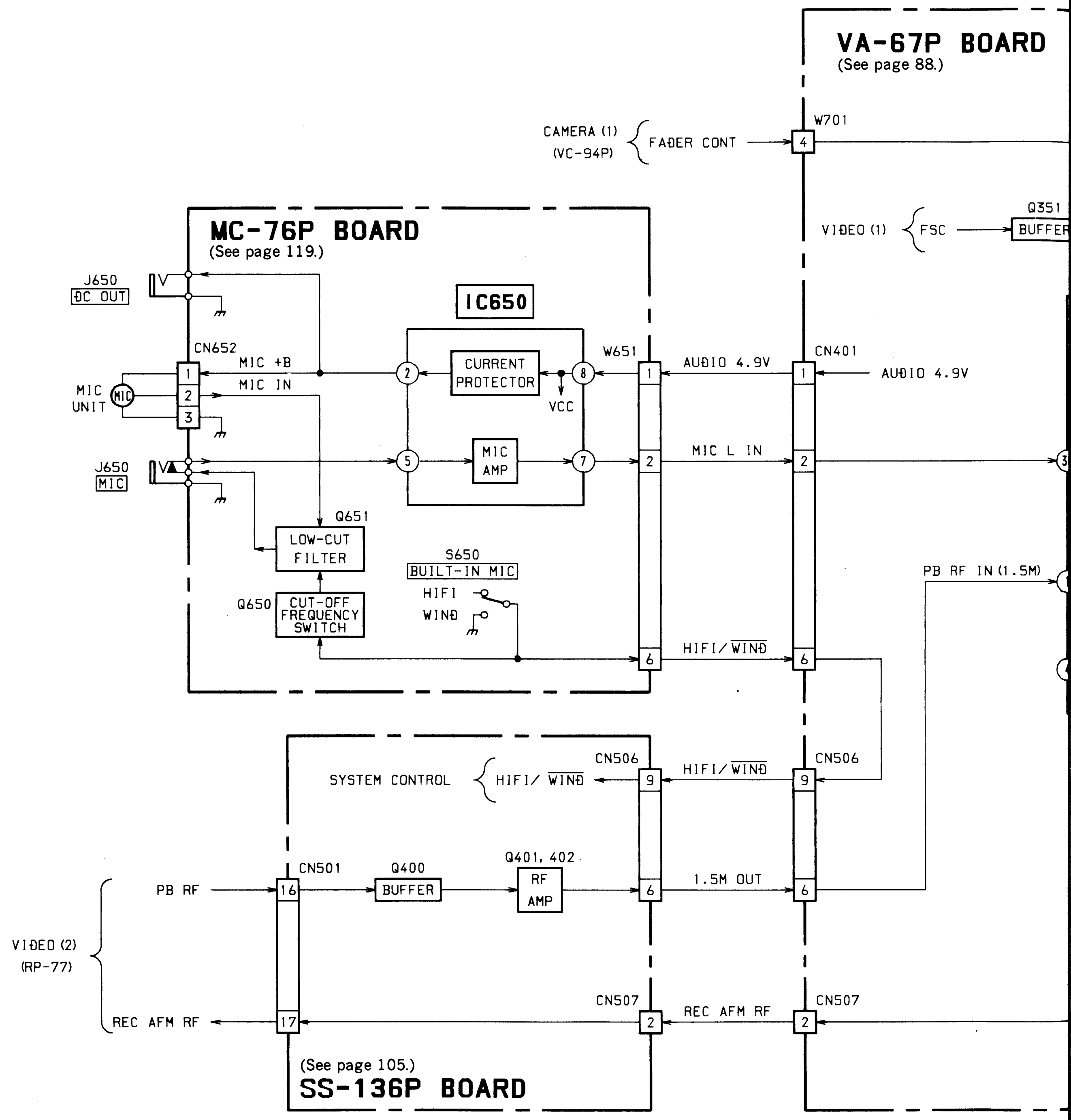
PIN No.	Signal Name	I/O	Function	Connection
60	DRM PG	—	—	——
61	DRM FG	I	DRUM FG input terminal, FRC capture input terminal	IC502 ⑩ Sense Amplifier
62	CAP FG	I	CAPSTAN FG input terminal, FRC capture input terminal	IC502⑫ Sense amplifier
63	MONO/$\overline{ST}$	—	Not used	——
64	SYNC DET	I	With/Without VIDEO signal recognition signal input	To VIDEO block
65	CAP D/A	O	DA gate pulse output terminal for CAP ERROR output, Servo exclusive output terminal (DA mode)	To capstan lowpass filter
66	DRM D/A	O	DA gate pulse output terminal for DRUM ERROR output, Servo exclusive output terminal (DA mode)	To drum lowpass filter
67	CAP PWM	O	PWM output terminal for CAP ERROR output, Servo excluseive output terminal (PWM mode)	Capstan driver IC503
68	DRM RVS	O	DRUM rotating direction control signal RVS is selected with "H" FWD is selected with "L"	IC503 ③
69	CAP FG	I	External event input terminal to CAP FG input terminal exclusive counter for TAPE COUNTER drive	IC502⑫ sense amplifier
70	MIC JACK MONO/$\overline{ST}$	I	External MIC Monaural/stereo recognition signal. Monaural is selected with "H"	To AUDIO block
71 72	SS 4.9V			
73	SS GND	—	—	——
74	—	—	Not used	——
75	CAP ON	O	Capstan driver ON control signal	IC504⑬ Capstan driver
76	CAP FWD/$\overline{REV}$	O	Capstan rotaing direction control signal, FWD is selected with "H", RVS is selected with "L"	IC504⑳ Capstan driver
77	$\overline{\text{RP PB MODE}}$	O	REC/PB mode select signal of RP amplifier and ATF IC	Q516 Ⓑ
78	FE ON	O	Flying erase oscillatio ON/OFF signal. Oscillation is selected with "H"	To RP AMP.
79	JOG VD	O	Artificial VD output terminal input to VIDEO signal in varying speed playback	To VIDEO block
80	RF SWP	O	RF SWP output temrinal	RP block VIDEO/AUDIO block

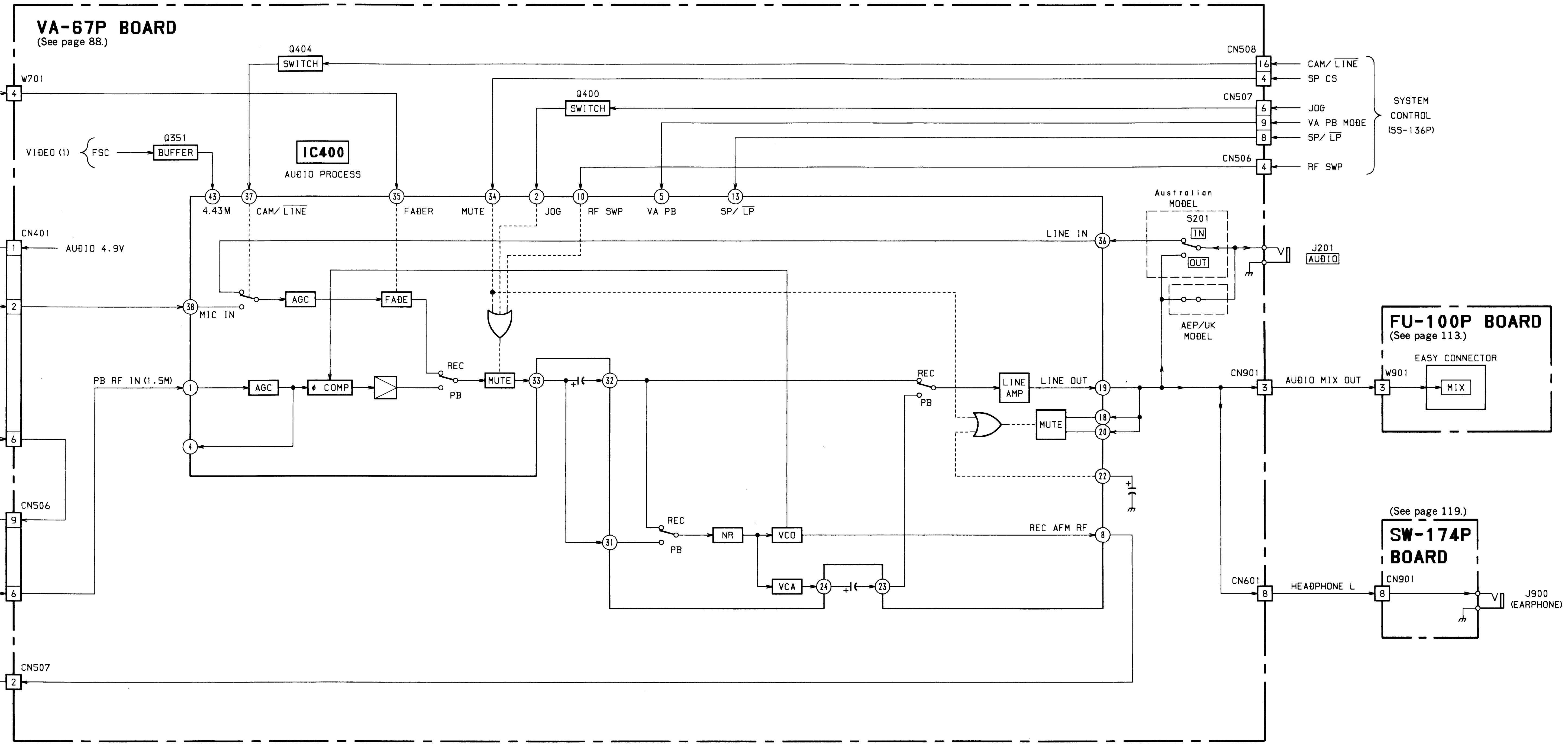
3-12. MODE CONTROL SYSTEM IC TERMINAL FUNCTION DESCRIPTION FU-100P BOARD IC501 (μPD75316)

PIN No.	Port Name	Function	I/O	Connection	Signal Name
1	S12	Segment signal output Segment terminal drive to LCD. Not used.	O		
2	S13	Output (Four value output of 0, 1.7, 3.3, 5V)	O		
3	S14	Output (Four value output of 0, 1.7, 3.3, 5V)	O		
4	S15	Output (Four value output of 0, 1.7, 3.3, 5V)	O		
5	S16	Output (Four value output of 0, 1.7, 3.3, 5V)	O		
6	S17	Output (Four value output of 0, 1.7, 3.3, 5V)	O		
7	S18	Output (Four value output of 0, 1.7, 3.3, 5V)	O		
8	S19	Output (Four value output of 0, 1.7, 3.3, 5V)	O		
9	S20	Not used	O		
10	S21	Not used	O		
11	S22	Not used	O		
12	S23	Not used	O		
13	S24/BP0	Chip select signal to video IC (CXA1207) 1V period "L" pulse	O	VA	$\overline{\text{VIDEO CS}}$
14	S25/BP1	Chip select signal to SS board IC501 (CXP80116) 1V period "L" pulse	O	SS IC501	$\overline{\text{MECHA CS}}$
15	S26/BP2	Chip select signal to LCD driver (M34206) 1V period "L" pulse	O	CK	$\overline{\text{LCD CS}}$
16	S27/BP3	Strobe signal for character generator (μPD6451) 1V "H" pulse train.	O	VA	CG STB
17	S28/BP4	Chip select to titler (CF79028) 1V "L" pulse	O		$\overline{\text{TITLE CS}}$
18	S29/BP5	Chip select to sercs remote control (μPD7564) 1V "L" pulse	O	DK	$\overline{\text{REMO CS}}$ REMOTE CONTROL
19	S30/BP6	Chip select to SRAM "H" when using title, Normally, "L"	O		S RAM CS
20	S31/BP7	Chip select to camera μCOM 1V period "H" pulse	O	CAMERA	CAM CS
21	COM0	LCD to common signal output Common terminal drive output Not used.	O		
22	COM1		O		
23	COM2		O		
24	COM3		O		
25	BIAS	Output terminal for outside dividing resistance cut, Power input. Not used.	O		
26	VLC0	Power source for LCD drive, 3V in backup Not used. Power source 0 input terminal	I		
27	VLC1	Power source 1 input terminal	I		
28	VLC2	Power source 2 input terminal	I		
29	P40	SS 5V,VTR 5V power source detection, "H" when VTR power source is turned on.	O	VA	VTR DD ON
30	P41	CAM 5V power source detection	O	CAMERA	$\overline{\text{CAM DD ON}}$
31	P42	Output port to reset each IC when power is turned on.	O	all	$\overline{\text{SYS RESET}}$
32	P43	External tally and internal tally drive port	O	VA and DK	$\overline{\text{TALLY}}$
33	V_{SS}	GND			V_{SS}
34	P50	L active KEY matrix output port	O	all	K OUT0
35	P51		O	all	K OUT1
36	P52		O	all	K OUT2
37	P53		O	all	K OUT3
38	P00/INT4	Clock select to 32K with "L" and to 4.19M with "H" when Battery is turned on, "L" is select.	I	FU	$\overline{\text{BATT IN}}$

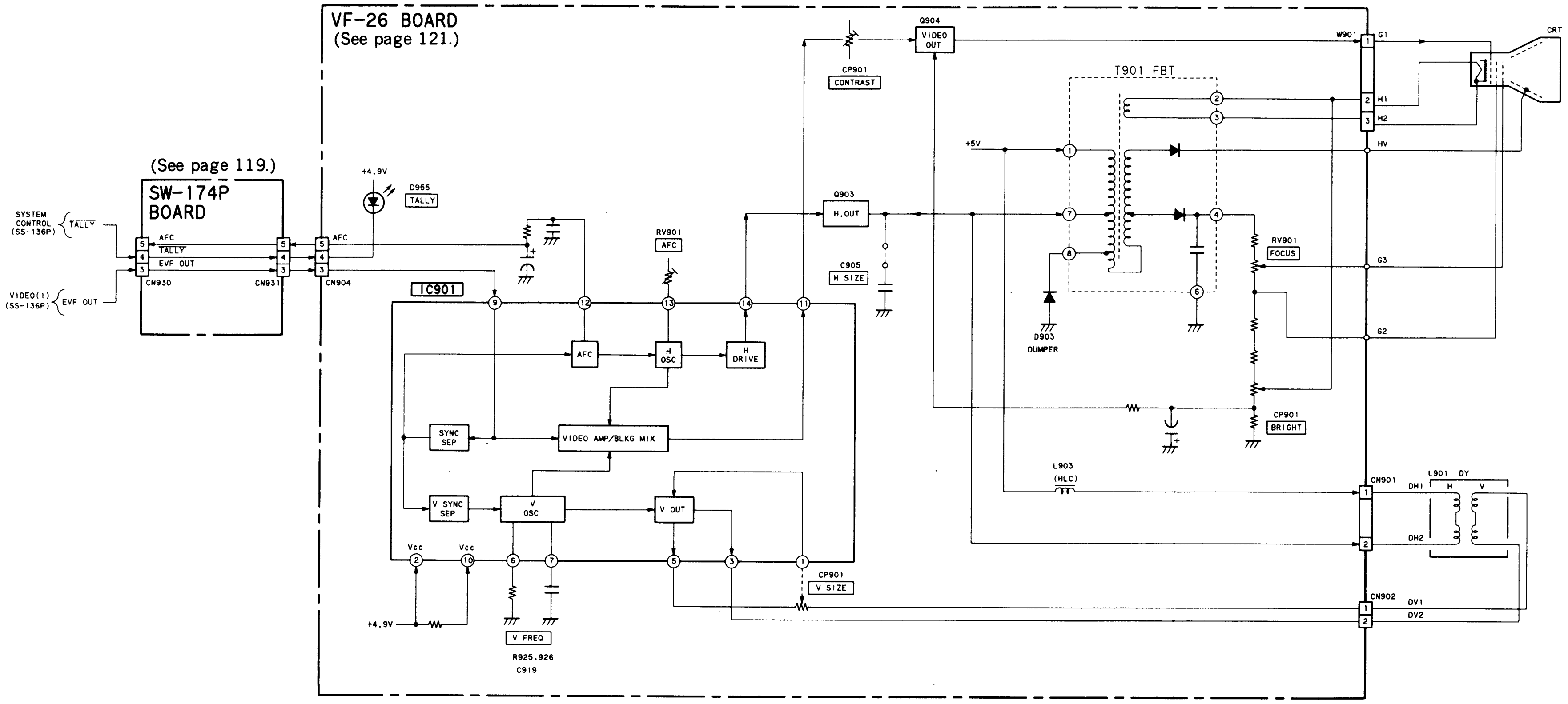
PIN No.	Port Name	Function	I/O	Connection	Signal name
39	P01/$\overline{\text{SCK}}$	Serial clock input-output terminal, Serial clock (2μS) communication	O	all	$\overline{\text{SCK}}$
40	P02/SO/SB0	Serial clock input-output terminal, Serial clock (2μS) communication	O	all	DATA TO SLVE
41	P03/SI/SB1	Serial bus input terminal, Serial clock (2μS) communication	I	all	DATA TO MASTR
42	P10/INT0	(Edge detection vector interruption), System synchronization input port from CXP80116	I	SS IC501	SYSTEM SYNC
43	P11/INT1	(Edge detection vector interruption), Lithium PRE END is selected wiht "L"	I	FU	$\overline{\text{LI PRE END}}$
44	P12/INT2	STABY release input, Release wiht "L" , STA	I	VA	$\overline{\text{LANC PWR ON}}$
45	P13/TIO	E^{2}PROM serial communication data input, EE PROM communiaction KEY matrix OUT is combined.	I	SS IC508	DATA TO MODE
46	P20/PT00	E^{2}PROM serial communication date output, EE PROM communication KEY matrix OUT is combined.	O	SS IC508	KOUT4/DATA TO EE
47	P21	E^{2}PROM serial communication clock output key matrix output, EE PROM communication KEY matrix OUT is combined.	O	SS IC508 VK	KOUT5/SCK EE
48	P22/PCL	Chip select to E^{2}PROM	O	SS IC508	$\overline{\text{EEPROM CS}}$
49	P23/BUZ	Buzzer out	O	SS	BUZZER
50	P30/LCDCL	CAMERA/LINE select output, Camera mode is selected wiht "H", VTR is selected with "L"	O	VA	CAM/$\overline{\text{LINE}}$
51	P31/SYNC	not used	O	VA	V MUTE
52	P32		O	VA	A MUTE
53	P33	Chip select to serial/parallel IC	O	VA	SP CS
54	V_{DD}	V_E 3V/5V power source terminal		FU	V_{DD}
55	XT1	Sub system clock 32K oscillation terminal	I	FU	XT1
56	XT2			FU	XT2
57	NC			—	NC
58	X1	Main system clock 4.19M oscillation terminal	I	FU	X1
59	X2		I	FU	X2
60	P60/KK0	KEY matrix input terminal 18msec period normally "H" Input-Output is possible by bit. Pull-up from software is possible by 4-bit.	I	all	K IN 0
61	P61/KR1		I	all	K IN 1
62	P62/KR2		I	all	K IN 2
63	P63/KR3		I	all	K IN 3
64	P70/KR4	KEY matrix input terminal. 18msec period normally "H" 4-bit input-Output port. Pull-up from software is possible by 4-bit.	I	all	K IN 4
65	P71/KR5		I	all	K IN 5
66	P72/KR6		I	all	K IN 6
67	P73/KR7		I	all	K IN 7
68	$\overline{\text{RESET}}$	System reset input, Reset input terminal of microcomputer	I		$\overline{\text{RESET}}$
69	S0	Segment signal output terminal. Not used.	O		
70	S1		O		
71	S2		O		
72	S3		O		
73	S4		O		
74	S5		O		
75	S6	LCD segment signal output terminal. Not used. (Four value output of 0, 1.7, 3.3, 5V)	O		
76	S7		O		
77	S8		O		
78	S9		O		
79	S10		O		
80	S11		O		

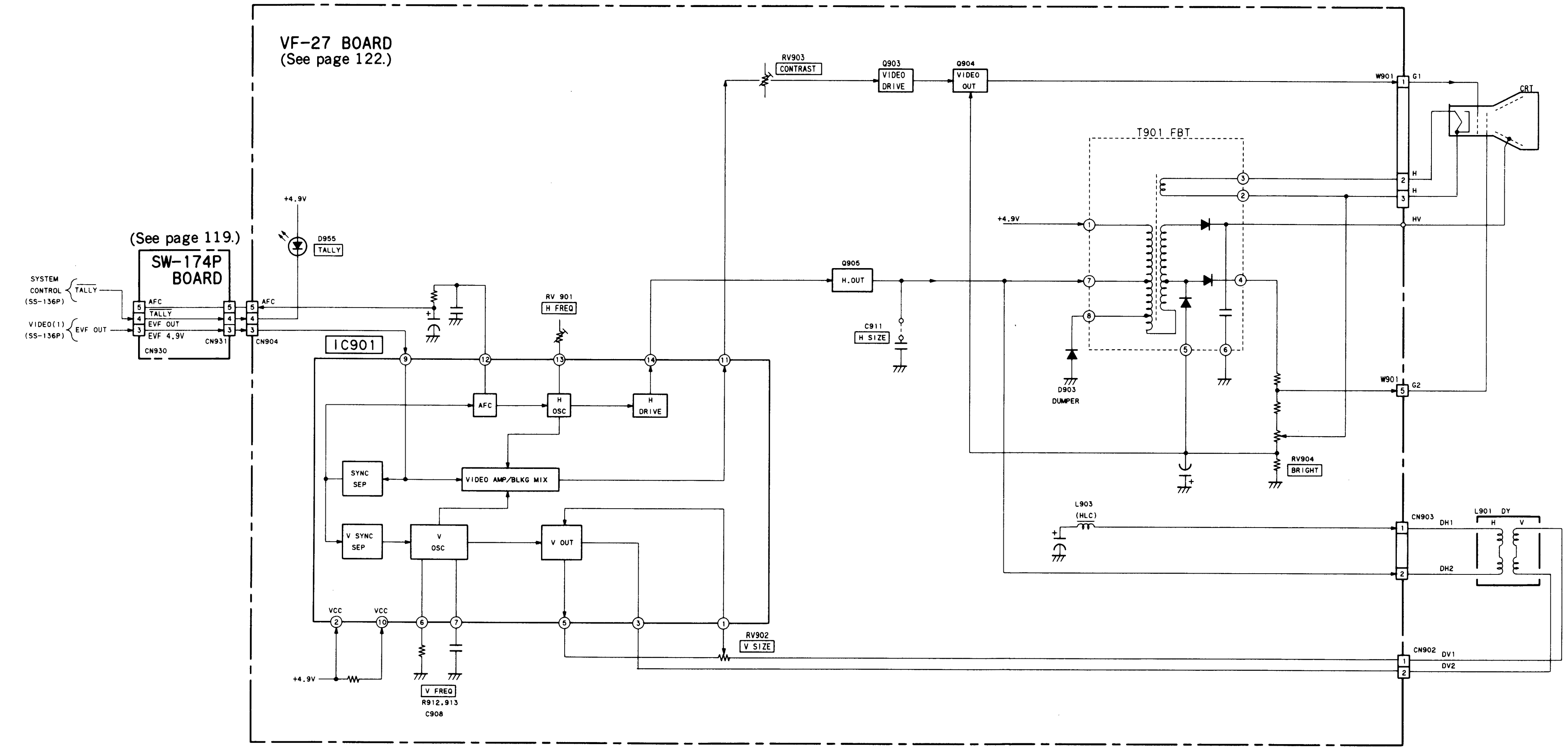
3-13. AUDIO BLOCK DIAGRAM


VA-67P BOARD
(See page 88.)
CAMERA (1)
(VC-94P)
FADER CONT
W701
4
VIDEO (1)
FSC
Q351
BUFFER
MC-76P BOARD
(See page 119.)
J650
DC OUT
IC650
CN652
MIC +B
MIC IN
1
2
3
MIC UNIT
MIC
CURRENT PROTECTOR
VCC
MIC AMP
W651
AUDIO 4.9V
CN401
AUDIO 4.9V
J650
MIC
MIC L IN
Q651
LOW-CUT FILTER
S650
BUILT-IN MIC
HIFI
WIND
Q650
CUT-OFF FREQUENCY SWITCH
HIFI/$\overline{\text{WIND}}$
PB RF IN (1.5M)
SYSTEM CONTROL
HIFI/ $\overline{\text{WIND}}$
CN506
HIFI/$\overline{\text{WIND}}$
CN506
9
CN501
Q400
BUFFER
Q401, 402
RF AMP
1.5M OUT
PB RF
16
VIDEO (2)
(RP-77)
REC AFM RF
17
CN507
REC AFM RF
CN507
(See page 105.)
SS-136P BOARD

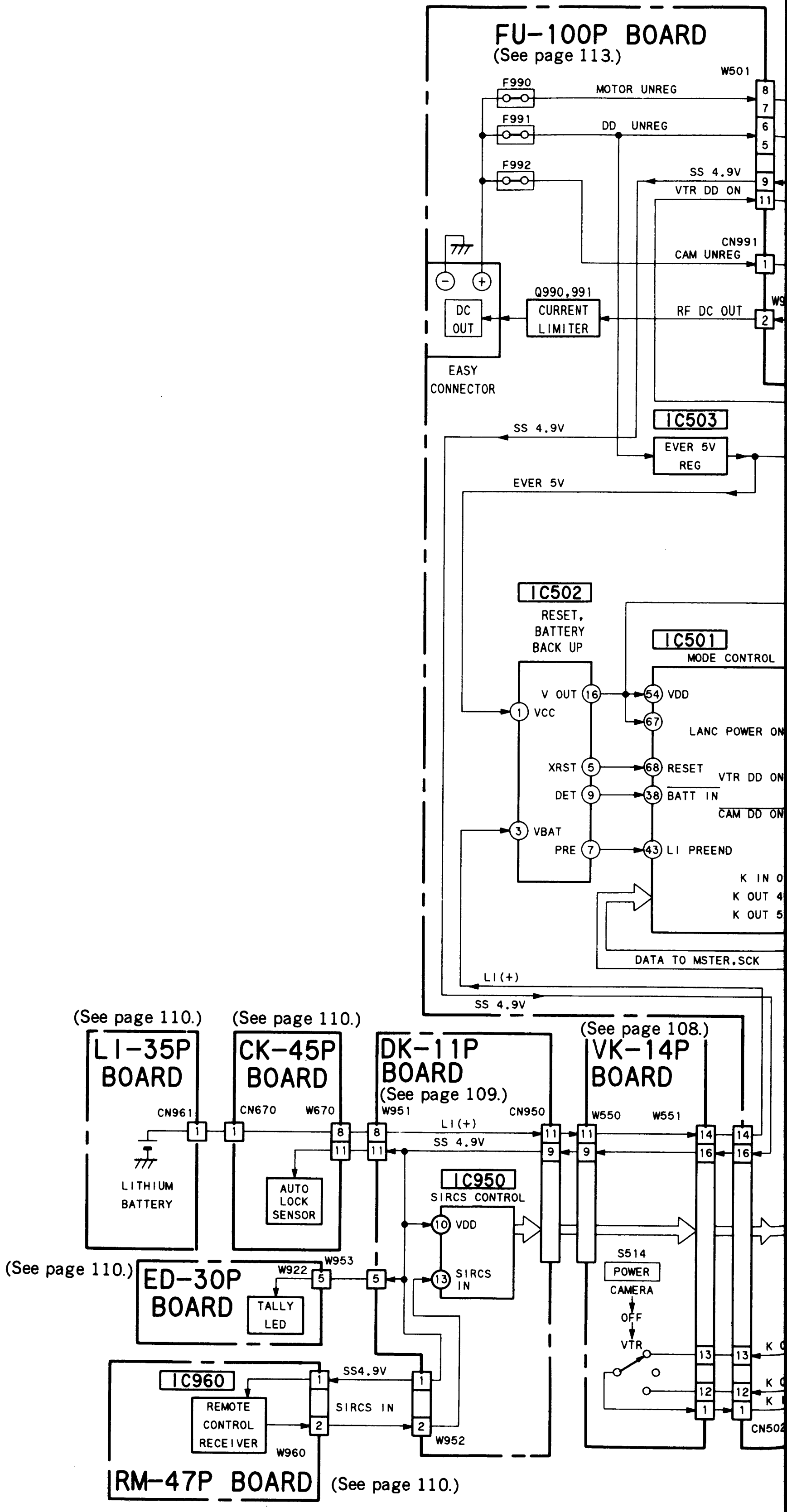

VA-67P BOARD
(See page 88.)
W701
4
Q404
SWITCH
Q400
SWITCH
CN508
16
CAM/ $\overline{\text{LINE}}$
4
SP CS
CN507
6
JOG
9
VA PB MODE
8
SP/ $\overline{\text{LP}}$
CN506
4
RF SWP
SYSTEM
CONTROL
(SS-136P)
VIDEO (1)
FSC
Q351
BUFFER
IC400
AUDIO PROCESS
43
4.43M
37
CAM/ $\overline{\text{LINE}}$
35
FADER
34
MUTE
2
JOG
10
RF SWP
5
VA PB
13
SP/ $\overline{\text{LP}}$
CN401
1
AUDIO 4.9V
2
38
MIC IN
AGC
FADE
LINE IN
36
Australian
MODEL
S201
IN
OUT
J201
AUDIO
AEP/UK
MODEL
PB RF IN (1.5M)
1
AGC
COMP
REC
PB
MUTE
33
32
REC
PB
LINE
AMP
LINE OUT
19
CN901
3
AUDIO MIX OUT
18
MUTE
20
4
6
22
CN506
9
REC
PB
31
NR
VCO
REC AFM RF
8
VCA
24
23
6
CN601
8
HEADPHONE L
CN507
2
FU-100P BOARD
(See page 113.)
EASY CONNECTOR
W901
3
MIX
(See page 119.)
SW-174P
BOARD
CN901
8
J900
(EARPHONE)

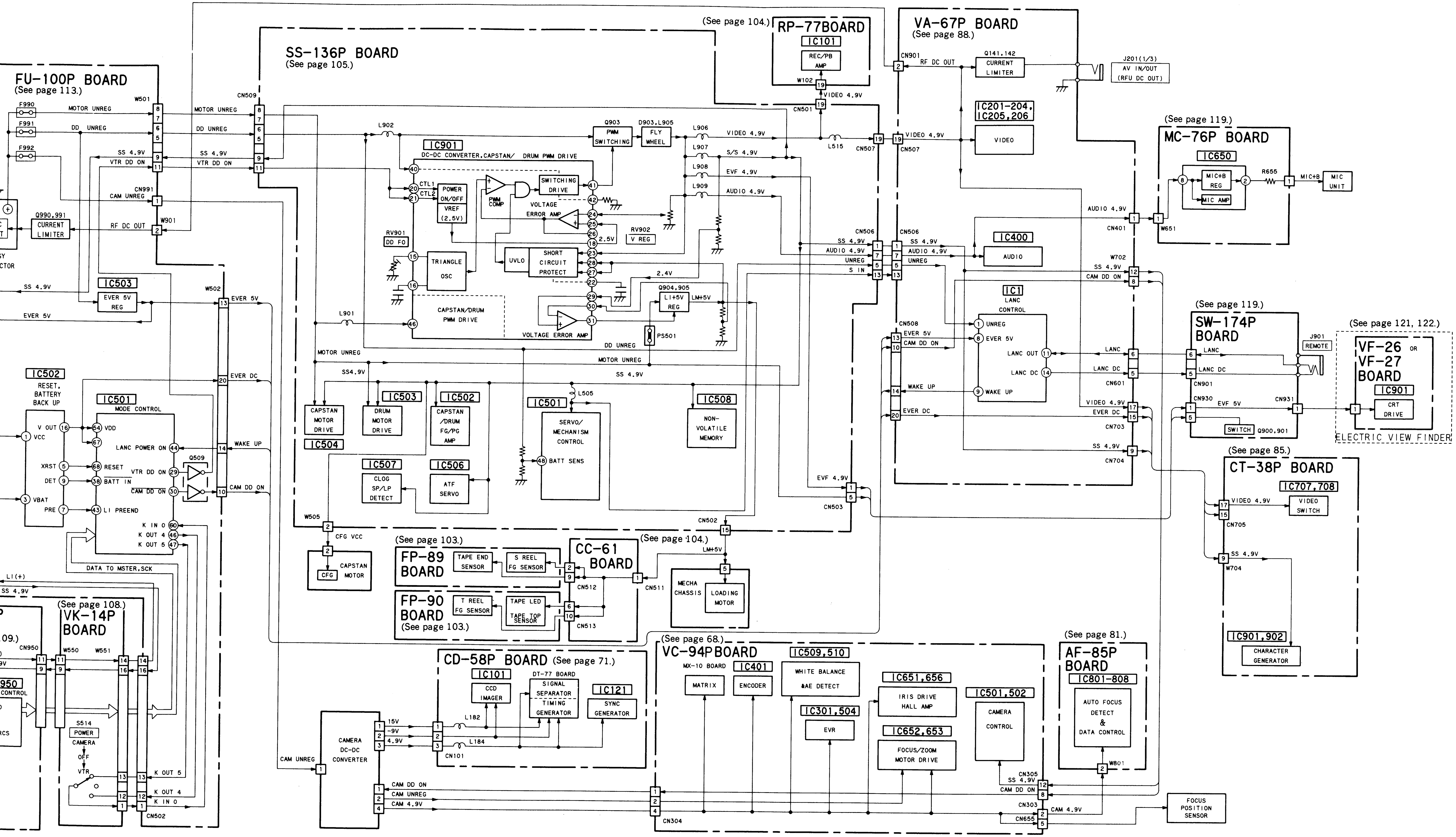
3-14. VIEWFINDER BLOCK DIAGRAM


VF-26 BOARD
(See page 121.)
(See page 119.)
SW-174P BOARD
SYSTEM CONTROL (SS-136P)
TALLY
VIDEO(1) (SS-136P)
EVF OUT
AFC
TALLY
EVF OUT
CN930
CN931
CN904
+4.9V
D955 TALLY
IC901
RV901 AFC
Q904 VIDEO OUT
CP901 CONTRAST
Q903 H.OUT
C905 H SIZE
+5V
T901 FBT
D903 DUMPER
RV901 FOCUS
CP901 BRIGHT
L903 (HLC)
AFC
H OSC
H DRIVE
SYNC SEP
VIDEO AMP/BLKG MIX
V SYNC SEP
V OSC
V OUT
Vcc
CP901 V SIZE
V FREQ
R925,926
C919
W901
G1
H1
H2
HV
G3
G2
CRT
CN901
DH1
DH2
L901 DY
H
V
CN902
DV1
DV2


VF-27 BOARD
(See page 122.)
(See page 119.)
SW-174P BOARD
SYSTEM CONTROL (SS-136P)
TALLY
VIDEO(1) (SS-136P)
EVF OUT
AFC
TALLY
EVF OUT
EVF 4.9V
CN930
CN931
CN904
+4.9V
D955 TALLY
IC901
RV 901 H FREQ
RV903 CONTRAST
Q903 VIDEO DRIVE
Q904 VIDEO OUT
Q905 H.OUT
C911 H SIZE
T901 FBT
D903 DUMPER
RV904 BRIGHT
L903 (HLC)
AFC
H OSC
H DRIVE
SYNC SEP
VIDEO AMP/BLKG MIX
V SYNC SEP
V OSC
V OUT
VCC
RV902 V SIZE
V FREQ
R912,913
C908
W901
G1
H
HV
G2
CRT
CN903
DH1
DH2
L901 DY
CN902
DV1
DV2

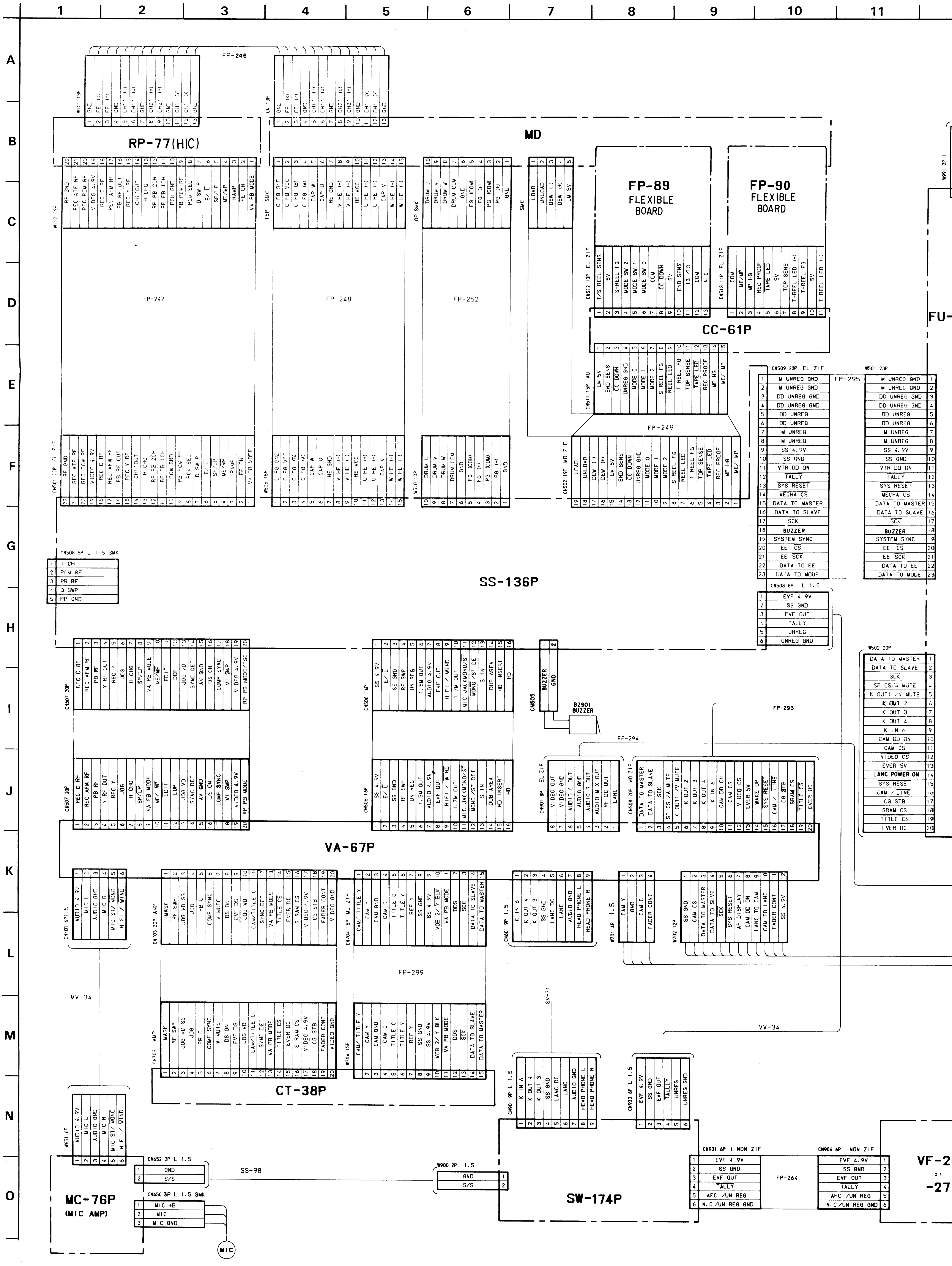
3-15. POWER BLOCK DIAGRAM


FU-100P BOARD
(See page 113.)
F990
F991
F992
MOTOR UNREG
DD UNREG
SS 4.9V
VTR DD ON
W501
CN991
CAM UNREG
RF DC OUT
DC OUT
EASY CONNECTOR
Q990,991 CURRENT LIMITER
SS 4.9V
EVER 5V
IC503
EVER 5V REG
IC502
RESET, BATTERY BACK UP
V OUT
VCC
XRST
DET
VBAT
PRE
IC501
MODE CONTROL
VDD
LANC POWER ON
RESET
BATT IN
VTR DD ON
CAM DD ON
LI PREEND
K IN 0
K OUT 4
K OUT 5
DATA TO MSTER.SCK
LI(+)
SS 4.9V
(See page 110.)
LI-35P BOARD
CN961
LITHIUM BATTERY
(See page 110.)
CK-45P BOARD
CN670
W670
AUTO LOCK SENSOR
DK-11P BOARD
(See page 109.)
W951
CN950
IC950
SIRCS CONTROL
VDD
SIRCS IN
(See page 108.)
VK-14P BOARD
W550
W551
S514 POWER
CAMERA
OFF
VTR
CN502
(See page 110.)
ED-30P BOARD
W922
TALLY LED
W953
IC960
REMOTE CONTROL RECEIVER
SS4.9V
SIRCS IN
W960
W952
RM-47P BOARD
(See page 110.)

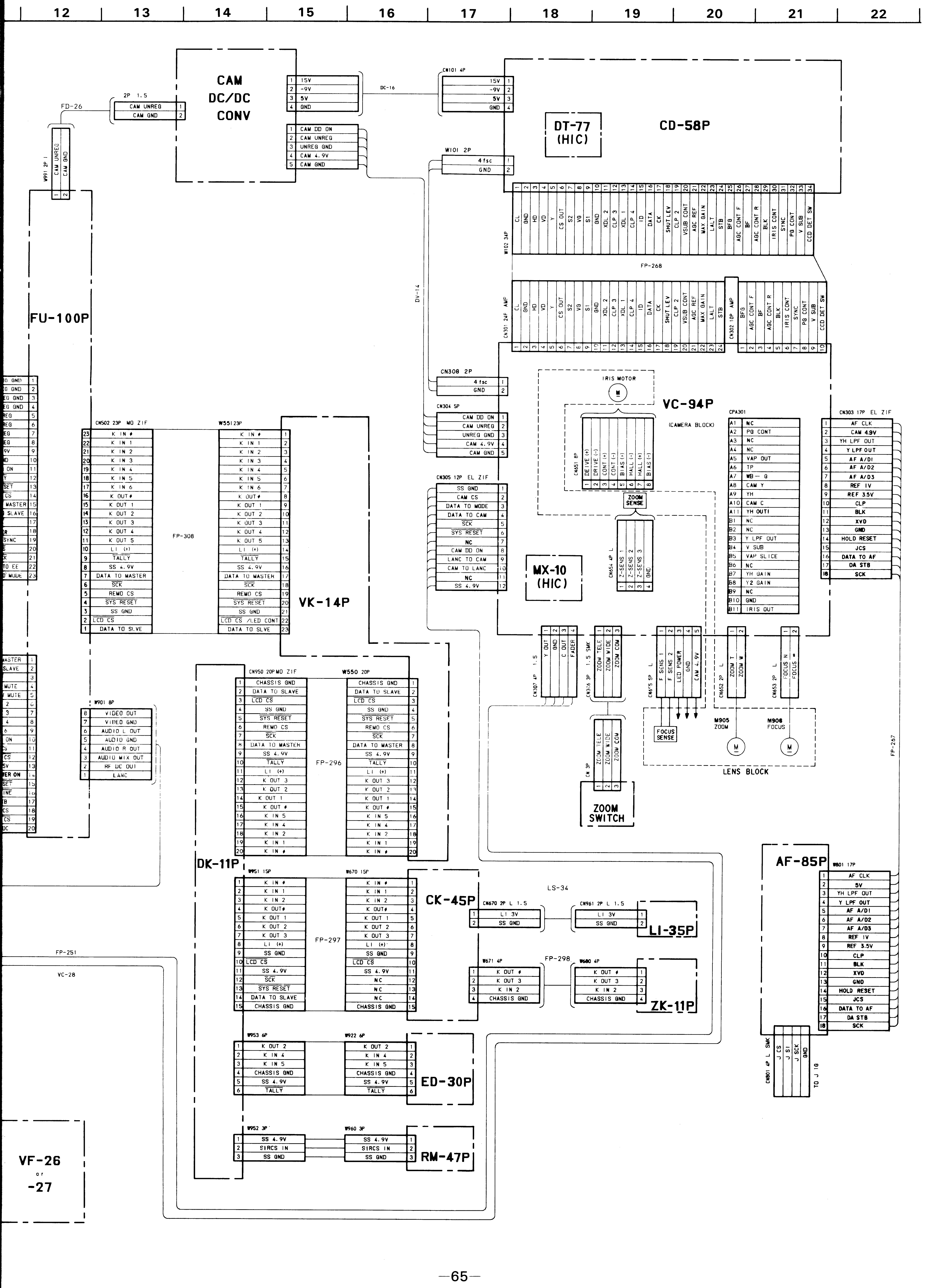

FU-100P BOARD
(See page 113.)
F990
F991
F992
MOTOR UNREG
DD UNREG
SS 4.9V
VTR DD ON
CAM UNREG
RF DC OUT
W501
CN991
W901
Q990,991
CURRENT LIMITER
IC503
EVER 5V REG
EVER 5V
W502
IC502
RESET, BATTERY BACK UP
IC501
MODE CONTROL
V OUT
VCC
VDD
LANC POWER ON
RESET
VTR DD ON
BATT IN
CAM DD ON
XRST
DET
VBAT
PRE
LI PREEND
K IN 0
K OUT 4
K OUT 5
Q509
EVER DC
WAKE UP
CAM DD ON
DATA TO MSTER.SCK
LI(+)
SS 4.9V
(See page 108.)
VK-14P BOARD
CN950
W550
W551
S514
POWER
CAMERA
OFF
VTR
K OUT 5
K OUT 4
K IN 0
CN502
SS-136P BOARD
(See page 105.)
CN509
L902
IC901
DC-DC CONVERTER,CAPSTAN/ DRUM PWM DRIVE
CTL1
CTL2
POWER ON/OFF
VREF (2.5V)
PWM COMP
SWITCHING DRIVE
VOLTAGE ERROR AMP
RV901
DD FO
TRIANGLE OSC
UVLO
SHORT CIRCUIT PROTECT
CAPSTAN/DRUM PWM DRIVE
VOLTAGE ERROR AMP
Q903
PWM SWITCHING
D903,L905
FLY WHEEL
L906
L907
L908
L909
VIDEO 4.9V
S/S 4.9V
EVF 4.9V
AUDIO 4.9V
RV902
V REG
2.5V
2.4V
Q904,905
LI+5V REG
LM+5V
PS501
L901
DD UNREG
MOTOR UNREG
SS4.9V
SS 4.9V
L505
CAPSTAN MOTOR DRIVE
IC504
DRUM MOTOR DRIVE
IC503
IC502
CAPSTAN /DRUM FG/PG AMP
IC501
SERVO/ MECHANISM CONTROL
BATT SENS
IC508
NON-VOLATILE MEMORY
IC507
CLOG SP/LP DETECT
IC506
ATF SERVO
W505
CFG VCC
CN502
CN503
CN506
CN507
CN501
CN508
UNREG
S IN
EVF 4.9V
CAPSTAN MOTOR
CFG
(See page 104.)
RP-77BOARD
IC101
REC/PB AMP
W102
VIDEO 4.9V
L515
(See page 103.)
FP-89 BOARD
TAPE END SENSOR
S REEL FG SENSOR
FP-90 BOARD
(See page 103.)
T REEL FG SENSOR
TAPE LED
TAPE TOP SENSOR
CC-61 BOARD
CN512
CN513
CN511
(See page 104.)
LM+5V
MECHA CHASSIS
LOADING MOTOR
VA-67P BOARD
(See page 88.)
CN901
RF DC OUT
Q141,142
CURRENT LIMITER
J201(1/3)
AV IN/OUT
(RFU DC OUT)
IC201-204,
IC205,206
VIDEO
IC400
AUDIO
IC1
LANC CONTROL
UNREG
EVER 5V
LANC OUT
LANC DC
WAKE UP
CAM DD ON
EVER DC
VIDEO 4.9V
AUDIO 4.9V
CN401
W702
CN601
CN703
CN704
(See page 119.)
MC-76P BOARD
IC650
MIC+B REG
MIC AMP
R655
MIC+B
MIC UNIT
W651
(See page 119.)
SW-174P BOARD
LANC
LANC DC
CN901
CN930
EVF 5V
CN931
SWITCH
Q900,901
J901
REMOTE
(See page 121, 122.)
VF-26 OR VF-27 BOARD
IC901
CRT DRIVE
ELECTRIC VIEW FINDER
(See page 85.)
CT-38P BOARD
IC707,708
VIDEO SWITCH
CN705
W704
IC901,902
CHARACTER GENERATOR
CD-58P BOARD (See page 71.)
IC101
CCD IMAGER
DT-77 BOARD
SIGNAL SEPARATOR TIMING GENERATOR
IC121
SYNC GENERATOR
L182
L184
CN101
15V
-9V
4.9V
CAMERA DC-DC CONVERTER
CAM UNREG
CAM DD ON
CAM 4.9V
(See page 68.)
VC-94P BOARD
MX-10 BOARD
MATRIX
IC401
ENCODER
IC509,510
WHITE BALANCE &AE DETECT
IC301,504
EVR
IC651,656
IRIS DRIVE HALL AMP
IC652,653
FOCUS/ZOOM MOTOR DRIVE
IC501,502
CAMERA CONTROL
CN304
CN305
CN303
CN655
(See page 81.)
AF-85P BOARD
IC801-808
AUTO FOCUS DETECT & DATA CONTROL
W801
FOCUS POSITION SENSOR

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM

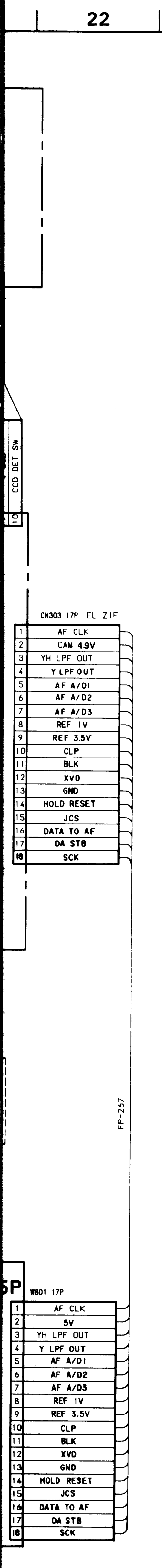


RP-77(HIC)
MD
FP-89
FLEXIBLE BOARD
FP-90
FLEXIBLE BOARD
CC-61P
FU-
SS-136P
VA-67P
CT-38P
SW-174P
MC-76P
(MIC AMP)
VF-2
-27
FP-246
FP-247
FP-248
FP-252
FP-249
FP-295
FP-293
FP-294
FP-299
FP-264
MV-34
SV-71
VV-34
SS-98
BZ901
BUZZER
MIC
CN501 22P EL ZIF
CN502 19P MD ZIF
CN503 6P L 1.5
CN505
CN506 16P
CN507 20P
CN508 5P L 1.5 SMK
CN509 23P EL ZIF
CN511 15P MD
CN512 13P EL ZIF
CN513 11P EL ZIF
CN508 20P MD ZIF
CN901 8P EL ZIF
CN401 6P L 1.5
CN703 20P AMP
CN704 15P MD ZIF
CN601 9P L 1.5
W701 4P L 1.5
W702 12P
CN705 AMP
W704 15P
CN901 9P L 1.5
CN930 6P L 1.5
CN931 6P I NON ZIF
CN904 6P NON ZIF
W651 6P
CN652 2P L 1.5
CN650 3P L 1.5 SMK
W900 2P 1.5
W501 23P
W502 20P
W101 13P
W102 22P
W991 2P


12
13
14
15
16
17
18
19
20
21
22
CAM DC/DC CONV
FD-26
2P 1.5
CAM UNREG
CAM GND
15V
-9V
5V
GND
DC-16
CN101 4P
CAM DD ON
CAM UNREG
UNREG GND
CAM 4.9V
CAM GND
W101 2P
4fsc
GND
DT-77 (HIC)
CD-58P
W102 34P
CL
GND
HD
VD
Y
CS OUT
S2
VG
S1
XDL 2
CLP 3
XDL 1
CLP 4
ID
DATA
CK
SHUT LEV
CLP 2
VSUB CONT
AGC REF
MAX GAIN
LALT
STB
BFG
AGC CONT F
BF
AGC CONT R
BLK
IRIS CONT
SYNC
PG CONT
V SUB
CCD DET SW
FP-268
CN301 24P AMP
CN302 10P AMP
DV-14
W991 2P
FU-100P
CN308 2P
CN304 5P
CN305 12P EL ZIF
SS GND
CAM CS
DATA TO MODE
DATA TO CAM
SCK
SYS RESET
NC
CAM DD ON
LANC TO CAM
CAM TO LANC
SS 4.9V
IRIS MOTOR
VC-94P
(CAMERA BLOCK)
CN451 8P
DRIVE (+)
DRIVE (-)
CONT (+)
CONT (-)
BIAS (+)
HALL (-)
HALL (+)
BIAS (-)
ZOOM SENSE
CN654 4P L
Z-SENS 1
Z-SENS 2
Z-SENS 3
GND
MX-10 (HIC)
CPA301
PG CONT
VAP OUT
TP
WB-G
CAM Y
YH
CAM C
YH OUT1
Y LPF OUT
V SUB
VAP SLICE
YH GAIN
Y2 GAIN
IRIS OUT
CN303 17P EL ZIF
AF CLK
CAM 4.9V
YH LPF OUT
Y LPF OUT
AF A/D1
AF A/D2
AF A/D3
REF 1V
REF 3.5V
CLP
BLK
XVD
HOLD RESET
JCS
DATA TO AF
DA STB
SCK
CN502 23P MO ZIF
W551 23P
K IN ♯
K IN 1
K IN 2
K IN 3
K IN 4
K IN 5
K IN 6
K OUT ♯
K OUT 1
K OUT 2
K OUT 3
K OUT 4
K OUT 5
LI (+)
TALLY
SS 4.9V
DATA TO MASTER
REMO CS
LCD CS
LCD CS /LED CONT
DATA TO SLVE
FP-308
VK-14P
CN307 4P 1.5
Y OUT
C OUT
FADER
CN306 3P 1.5 SMK
ZOOM TELE
ZOOM WIDE
ZOOM COM
CN655 5P L
F SENS 1
F SENS 2
LED POWER
CN652 2P L
ZOOM T
ZOOM W
CN653 2P L
FOCUS N
FOCUS ∞
FOCUS SENSE
M905 ZOOM
M906 FOCUS
LENS BLOCK
FP-267
CN 3P
ZOOM SWITCH
W901 8P
VIDEO OUT
VIDEO GND
AUDIO L OUT
AUDIO GND
AUDIO R OUT
AUDIO MIX OUT
RF DC OUT
LANC
CN950 20P MO ZIF
W550 20P
CHASSIS GND
DATA TO SLAVE
FP-296
DK-11P
W951 15P
W670 15P
FP-297
CK-45P
CN670 2P L 1.5
LS-34
CN961 2P L 1.5
LI 3V
LI-35P
W671 4P
FP-298
W680 4P
ZK-11P
W953 6P
W922 6P
ED-30P
W952 3P
W960 3P
SIRCS IN
RM-47P
AF-85P
W801 17P
5V
CN801 4P L SMK
J CS
J SI
J SCK
TO J 18
FP-251
VC-28
VF-26 or -27

[SEM

In th
semic
shown
easily


22
CCD DET SW
10
CN303 17P EL ZIF
1 AF CLK
2 CAM 4.9V
3 YH LPF OUT
4 Y LPF OUT
5 AF A/D1
6 AF A/D2
7 AF A/D3
8 REF 1V
9 REF 3.5V
10 CLP
11 BLK
12 XVD
13 GND
14 HOLD RESET
15 JCS
16 DATA TO AF
17 DA STB
18 SCK
FP-267
5P
W801 17P
1 AF CLK
2 5V
3 YH LPF OUT
4 Y LPF OUT
5 AF A/D1
6 AF A/D2
7 AF A/D3
8 REF 1V
9 REF 3.5V
10 CLP
11 BLK
12 XVD
13 GND
14 HOLD RESET
15 JCS
16 DATA TO AF
17 DA STB
18 SCK
TO J 10

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.

(In addition to this, the necessary note is printed in each block.)

- **For printed wiring boards.**
- ● : Through hole.
- ░ : Pattern from the side which enables seeing.
- ▓ : Pattern of the rear side.*
- Circled numbers refer to waveforms.*

- **For schematic diagram.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W or 1/16W unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⊡ : nonflammable resistor.
- ∿ : fusible resistor.
- ▭ : panel designation.
- △ : internal component.
- ▭ : adjustment for repair.*
- ━ : B + Line*
- Circled numbers refer to waveforms.*
- ⇨ : IN/OUT direction of B (+, −) line.*

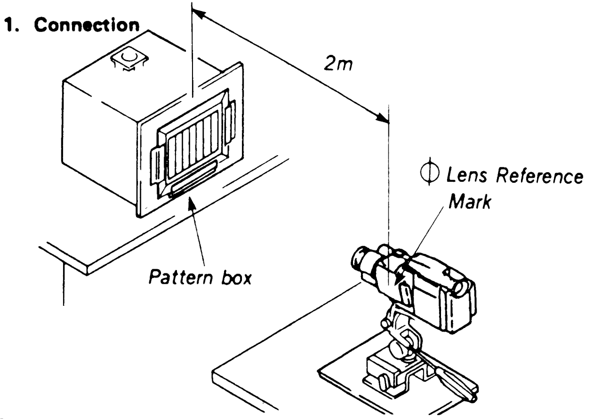
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

* Indicated by the color red.

- **For voltage and waveforms. (CAMERA REC mode)**
- Voltage and waveform measuring conditions: *
  (1) Sample object: Pattern box color bars.*
  (2) Voltage values: Relative to ground, measured with a DC digital multimeter (impedance 10M-ohm or more).*

1. Connection


2m
Lens Reference Mark
Pattern box

2. Adjust the zooming of camera and the tripod so that the output waveform of Fig. a and the picture of Fig. b can be obtain.

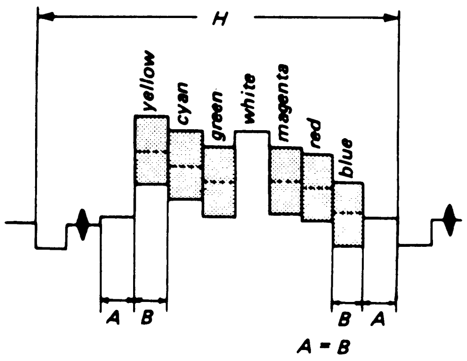

H
yellow
cyan
green
white
magenta
red
blue
A
B
B
A
A = B

Fig. a Video output waveform.

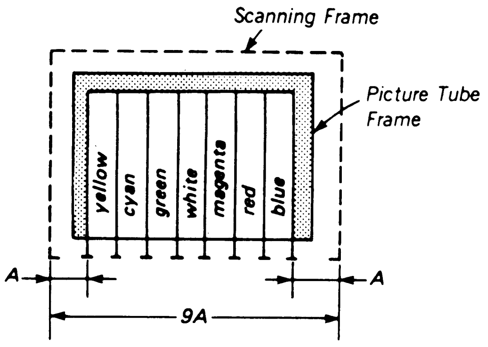

Scanning Frame
Picture Tube Frame
yellow
cyan
green
white
magenta
red
blue
A
A
9A

Fig. b Picture of TV monitor screen

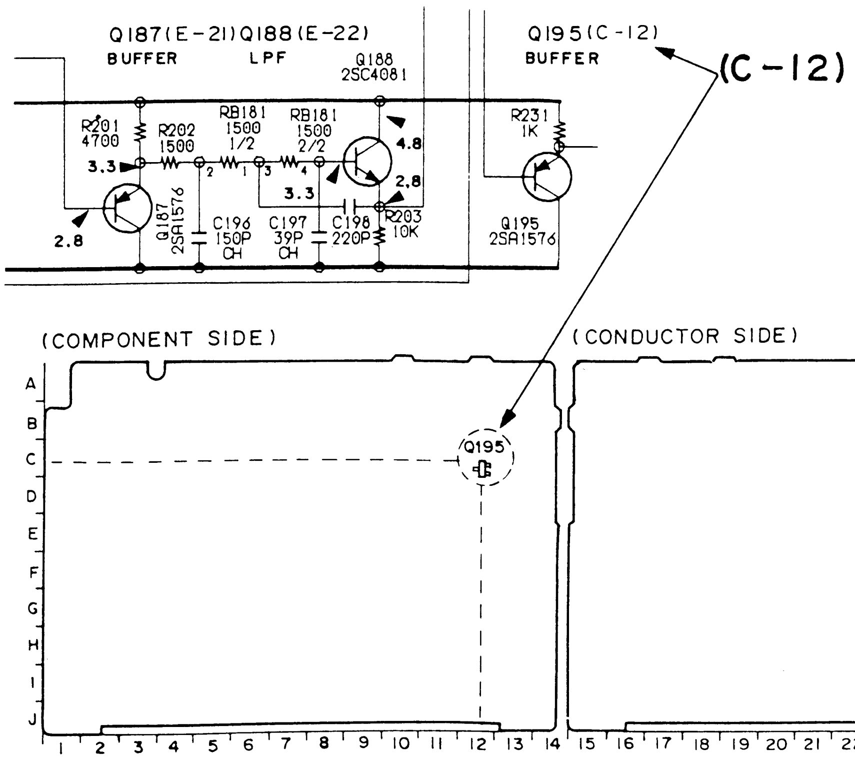
- **For voltage and waveforms. (REC/PB mode)**
- Voltages are dc between ground and measurement points.*
- Readings are taken with a color-bar signal input. *
- Readings are taken with a digital multimeter (DC10MΩ).*
- Voltage variations may be noted due to normal production tolerances.*

Precautions for replacement of CCD imager block.

- With a pair of IC101 (CCD imager) on the CD-58P complete board and IC001 (corrector ROM) on the DT-77 complete board, it is used a repair part of the CCD imager block.
  Since corrector ROM IC is manufactured to match the CCD imager, replacement of a single unit of the CCD imager corrector ROM cannot be allowed.
- When both a CCD imager and the corrector ROM, replace both the CCD imager and the corrector ROM, when a corrector ROM is not mounted on the service set, install a corrector ROM which is supplied anew.
- IC101 (CCD imager) is not mounted on the CD-58P complete board to be supplied as a repair part, and IC001 (corrector ROM) is not mounted on the DT-77 complete board to be supplied as a repair part. When the respective boards are replaced, remove the respective ICs from the old boards and install them to the new once respectively.
- After the CCD imager block has been replaced, perform the entire adjustments of the camera section.
- CCD imager is structurally in case of being broken down by static electricity.
  For this reason, take care to handle it as well as MOS IC. Moreover, care should be taken for dust not to be stuck on the light reseiving section and for strong light not to get into there.

[SEMICONDUCTOR LOCATION]

In this service manual, the mounted locations of the semiconductors (IC, transistor, diodes) are indicated in red as shown below. This enables to find the location on the board easily when servicing.


Q187(E-21) Q188(E-22)
BUFFER
LPF
Q188
2SC4081
Q195(C-12)
BUFFER
(C-12)
R201
4700
R202
1500
RB181
1500
1/2
RB181
1500
2/2
3.3
4.8
2.8
3.3
Q187
2SA1576
C196
150P
CH
C197
39P
CH
C198
220P
R203
10K
R231
1K
Q195
2SA1576
2.8
(COMPONENT SIDE)
(CONDUCTOR SIDE)
A
B
C
D
E
F
G
H
I
J
Q195
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27

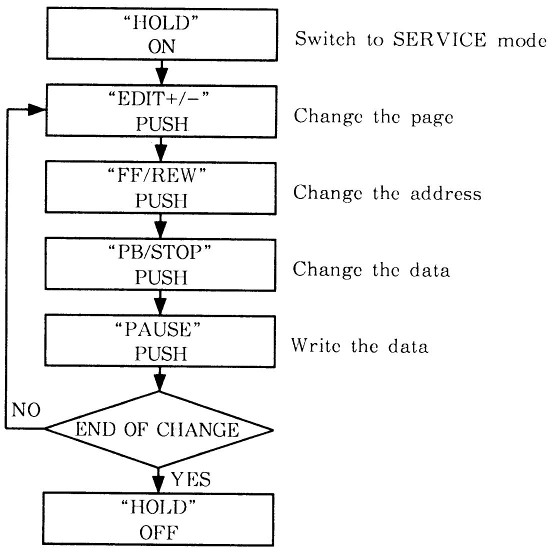
[To set the AEP, UK model to REC mode]

1. Enter SERVICE mode with the adjustment remote control. (Refer to page 161 for details.)
2. Set the data at adress: 00 on page: 1 to 01 ∗ 1.
3. Set the data at address: 02 on page: D to 03 ∗ 1.
4. Turn the power of the set off.
5. Turn the power of the set on.
6. Make shorting once for S510 land (REC switch) of VK-14P board.

After voltage measurement and adjustment, restore as follows:

1. Set the data at address: 00 on page: 1 to 01 ∗ 1.
2. Set the data at address: 02 on page: D to 02 ∗ 1.
3. Turn the power of the set off.

∗1 [To change the data]


"HOLD" ON
Switch to SERVICE mode
"EDIT+/−" PUSH
Change the page
"FF/REW" PUSH
Change the address
"PB/STOP" PUSH
Change the data
"PAUSE" PUSH
Write the data
NO
END OF CHANGE
YES
"HOLD" OFF

[To input VIDEO signal to the AEP, UK model]

Input VIDEO signal to pin ⑨ of the land for S201 on the VA-67P board.
(GND for J201 VIDEO output terminal should be used for grounding.)

CD-58P (CCD IMAGER), VC-94P (CAMERA PROCESS, ZOOM/FOCUS) SCHEMATIC DIAGRAM

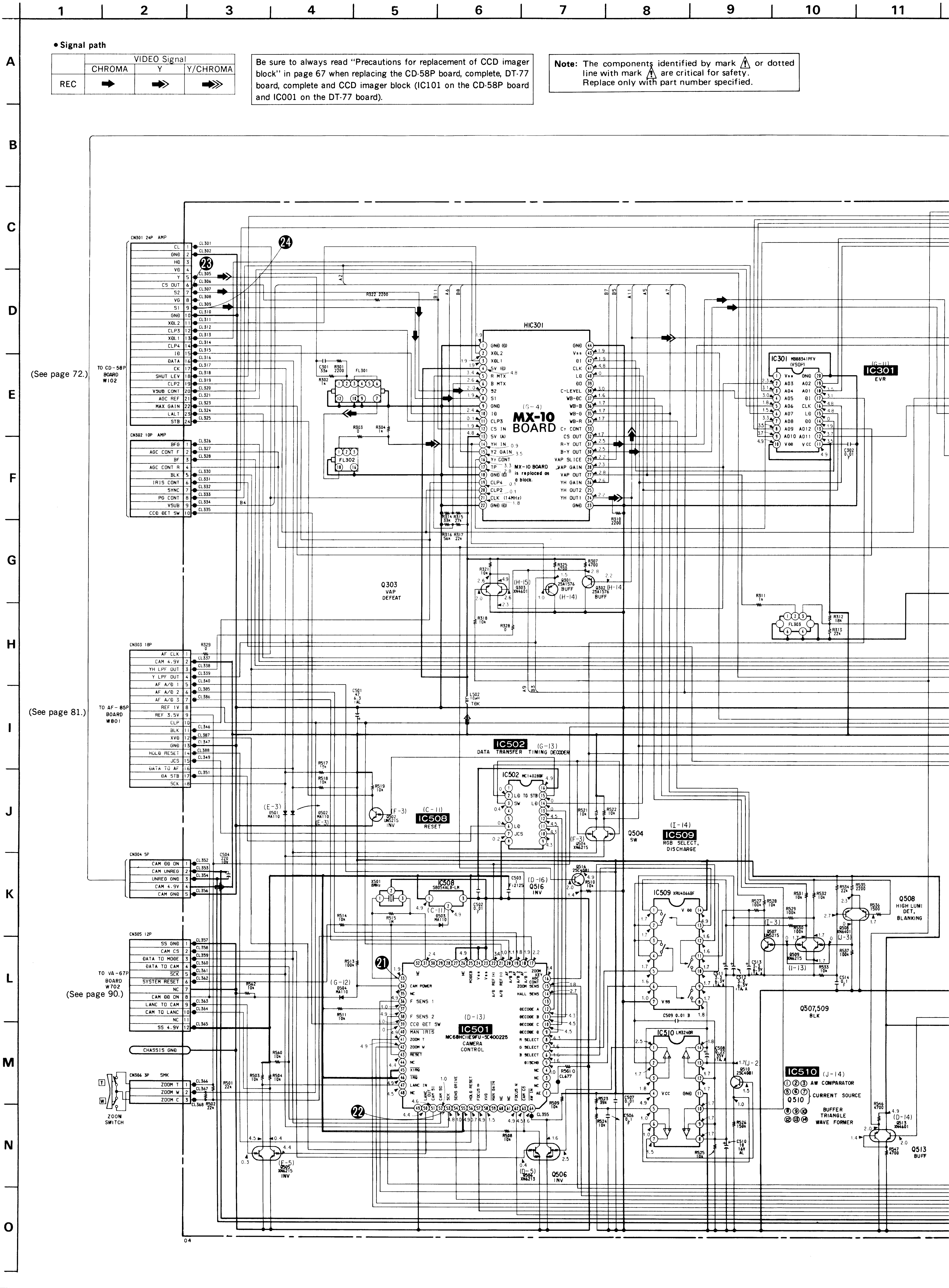
—Ref. No. CD-58P and, VC-94P BOARDS : 1000 series—

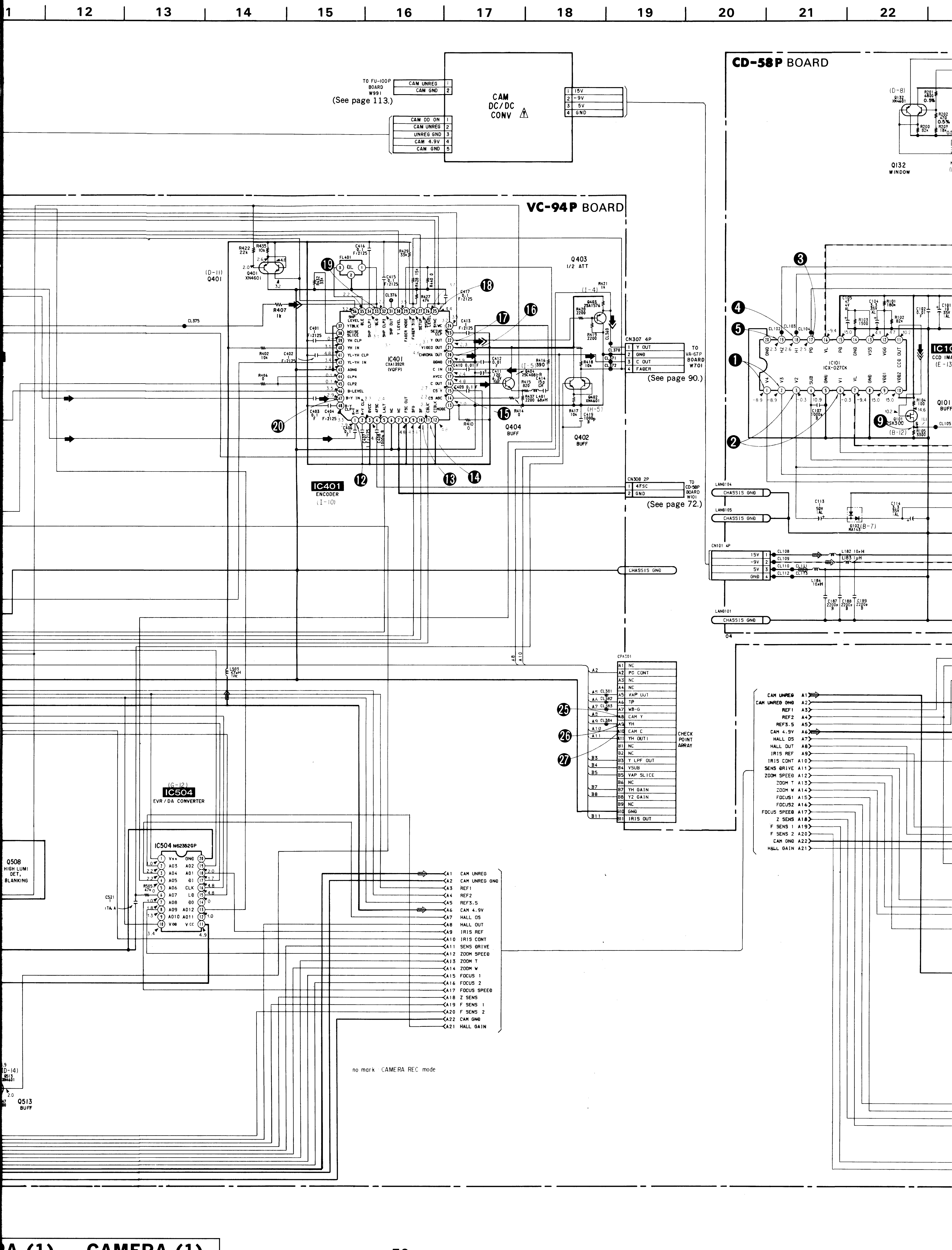
- **Signal path**

	VIDEO Signal		
	CHROMA	Y	Y/CHROMA
REC	➡	➡➡	➡➡➡

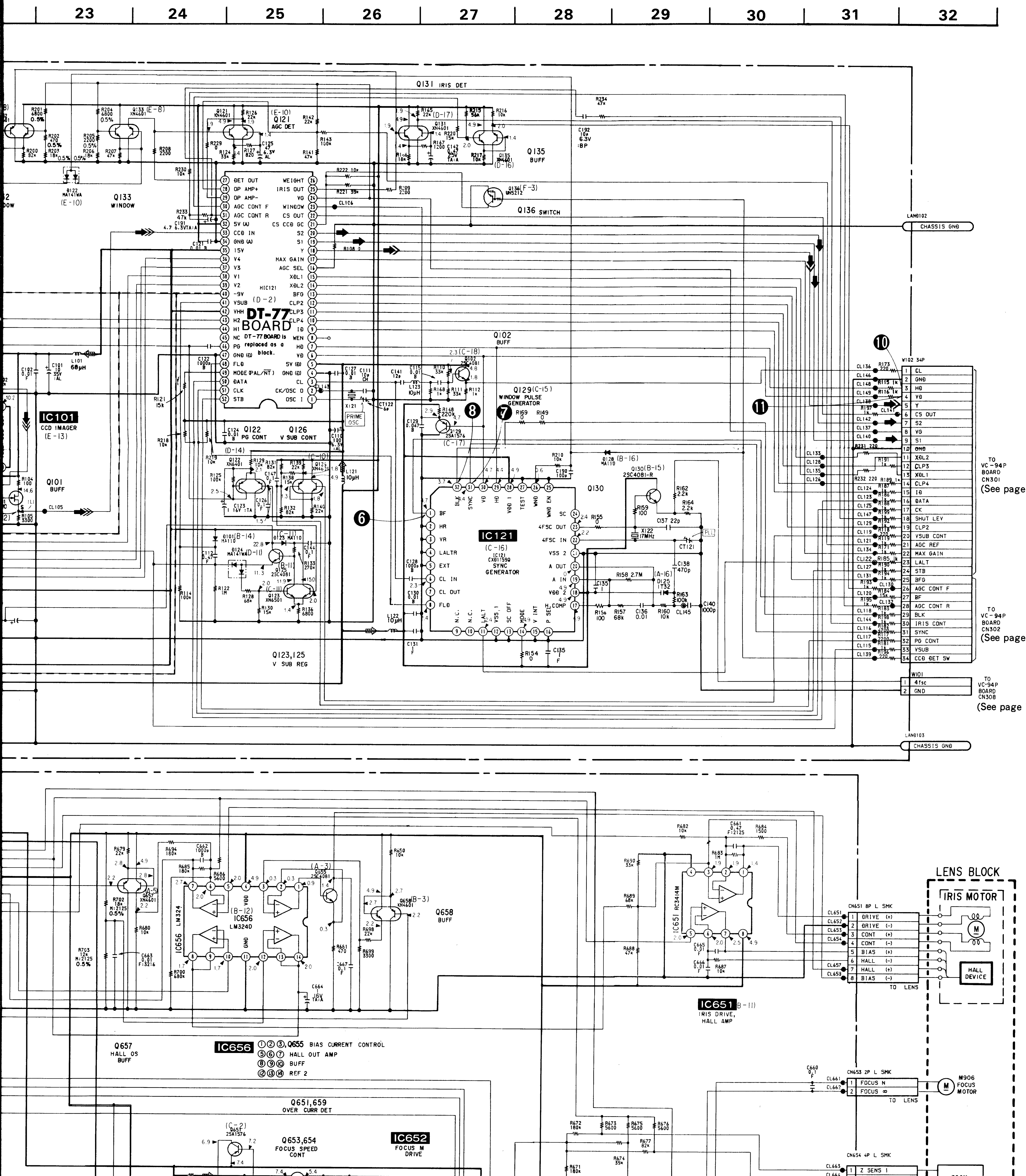
Be sure to always read "Precautions for replacement of CCD imager block" in page 67 when replacing the CD-58P board, complete, DT-77 board, complete and CCD imager block (IC101 on the CD-58P board and IC001 on the DT-77 board).

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
CN301 24P AMP
TO CD-58P BOARD W102
(See page 72.)
CN302 10P AMP
CN303 18P
TO AF-85P BOARD W801
(See page 81.)
CN304 5P
CN305 12P
TO VA-67P BOARD W702
(See page 90.)
CHASSIS GND
CN306 3P SMK
ZOOM SWITCH
HIC301
(G-4) MX-10 BOARD
MX-10 BOARD is replaced as a block.
FL301
FL302
FL303
IC301 MB88341PFV (VSOP)
IC301 EVR
Q303 VAP DEFEAT
Q301 2SA1576 BUFF
Q302 2SA1576 BUFF
IC502 (G-13) DATA TRANSFER TIMING DECODER
IC502 MC14028BF
IC508 (C-11) RESET
IC508 S8054ALB-LN
Q502 UN5215 INV
Q504 SW
IC509 (I-14) RGB SELECT, DISCHARGE
IC509 XRU4066BF
Q516 INV
Q508 HIGH LUMI DET, BLANKING
IC501 (D-13) MC68HC11E9FU-5C400225 CAMERA CONTROL
IC510 LM324OR
IC510 (J-14) ①②③ AW COMPARATOR ⑤⑥⑦ Q510 CURRENT SOURCE ⑧⑨⑩ ⑫⑬⑭ BUFFER TRIANGLE WAVE FORMER
Q507,509 BLK
Q505 INV
Q506 INV
Q513 BUFF
X501 8MHz
㉑
㉒
㉓
㉔



12
13
14
15
16
17
18
19
20
21
22
CAM DC/DC CONV
TO FU-100P BOARD W991
(See page 113.)
CAM UNREG
CAM GND
CAM DD ON
CAM UNREG
UNREG GND
CAM 4.9V
CAM GND
15V
-9V
5V
GND
VC-94P BOARD
CD-58P BOARD
Q401 XN4601
Q403 1/2 ATT
Q403 2SA1576
IC401 CXA1392R (VQFP)
IC401 ENCODER
Q404 2SC4081-R
Q404 BUFF
Q402 XN4601
Q402 BUFF
CN307 4P
Y OUT
GND
C OUT
FADER
TO VA-67P BOARD W701
(See page 90.)
CN308 2P
4FSC
GND
TO CD-58P BOARD W101
(See page 72.)
CHASSIS GND
CPA501
NC
PG CONT
NC
NC
VAP OUT
TP
WB-G
CAM Y
YH
CAM C
YH OUT1
NC
NC
Y LPF OUT
VSUB
VAP SLICE
NC
YH GAIN
Y2 GAIN
NC
GND
IRIS OUT
CHECK POINT ARRAY
IC504 EVR/DA CONVERTER
IC504 M62352GP
Q508 HIGH LUMI DET, BLANKING
Q513 BUFF
CAM UNREG
CAM UNREG GND
REF1
REF2
REF3.5
CAM 4.9V
HALL OS
HALL OUT
IRIS REF
IRIS CONT
SENS DRIVE
ZOOM SPEED
ZOOM T
ZOOM W
FOCUS 1
FOCUS 2
FOCUS SPEED
Z SENS
F SENS 1
F SENS 2
CAM GND
HALL GAIN
no mark CAMERA REC mode
Q132 WINDOW
IC101 ICX-027CK
CCD IMA
Q101 2SK300
Q101 BUFF
D102 MA143
CN101 4P
CHASSIS GND

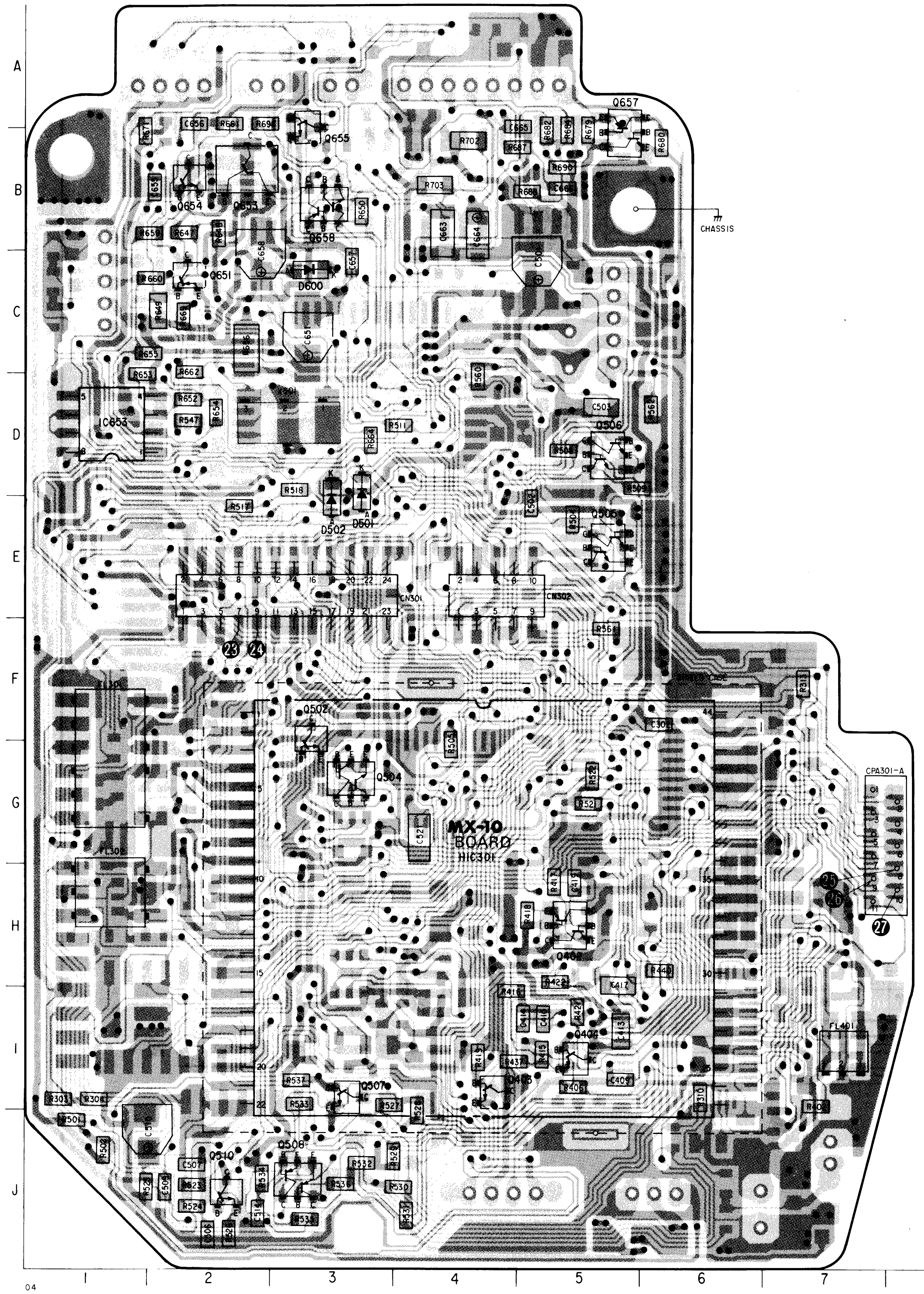

23
24
25
26
27
28
29
30
31
32
Q131 IRIS DET
Q121 AGC DET
Q133 WINDOW
Q135 BUFF
Q136 SWITCH
Q134 UN5212
HIC121 (D-2)
DT-77 BOARD
DT-77 BOARD is replaced as a block.
IC101 CCD IMAGER (E-13)
Q101 BUFF
Q102 BUFF
Q129 (C-15) WINDOW PULSE GENERATOR
Q122 PG CONT
Q126 V SUB CONT
Q123,125 V SUB REG
Q130 (B-15) 2SC4081-R
IC121 (C-16) CXD1159Q SYNC GENERATOR
X121 PRIME OSC
X122 17MHz
CHASSIS GND
LAN0102
LAN0103
W102 34P
TO VC-94P BOARD CN301 (See page 68.)
TO VC-94P BOARD CN302 (See page 68.)
W101
TO VC-94P BOARD CN308 (See page 70.)
1 CL
2 GND
3 HD
4 VD
5 Y
6 CS OUT
7 S2
8 VG
9 S1
10 GND
11 XOL2
12 CLP3
13 XOL1
14 CLP4
15 ID
16 DATA
17 CK
18 SHUT LEV
19 CLP2
20 VSUB CONT
21 AGC REF
22 MAX GAIN
23 LALT
24 STB
25 BFG
26 AGC CONT F
27 BF
28 AGC CONT R
29 BLK
30 IRIS CONT
31 SYNC
32 PG CONT
33 VSUB
34 CCD DET SW
1 4fsc
2 GND
LENS BLOCK
IRIS MOTOR
HALL DEVICE
CN651 8P L SMK
1 DRIVE (+)
2 DRIVE (-)
3 CONT (+)
4 CONT (-)
5 BIAS (+)
6 HALL (-)
7 HALL (+)
8 BIAS (-)
TO LENS
IC651 RC3414M
IC651 (B-11) IRIS DRIVE, HALL AMP
IC656 LM324D (B-12)
Q658 BUFF
Q657 HALL OS BUFF
IC656 ①②③,Q655 BIAS CURRENT CONTROL
⑤⑥⑦ HALL OUT AMP
⑧⑨⑩ BUFF
⑫⑬⑭ REF 2
Q651,659 OVER CURR DET
Q653,654 FOCUS SPEED CONT
IC652 FOCUS M DRIVE
IC652 MPC1737M (B-14)
IC653 LM3560 (D-1)
IC653 FOCUS SPEED/ FOCUS FG AMP
Q656 LED POWER
CN653 2P L SMK
1 FOCUS N
2 FOCUS ∞
M906 FOCUS MOTOR
CN654 4P L SMK
1 Z SENS 1
2 Z SENS 2
3 Z SENS 3
4 GND
ZOOM SENSE
CN652 2P L SMK
1 ZOOM T
2 ZOOM W
M905 ZOOM MOTOR
CN655 5P L SMK
1 F SENS 1
2 F SENS 2
3 LED POWER
4 GND
5 CAM 4.9V
FOCUS SENSE

no mark : CAMERA REC mode

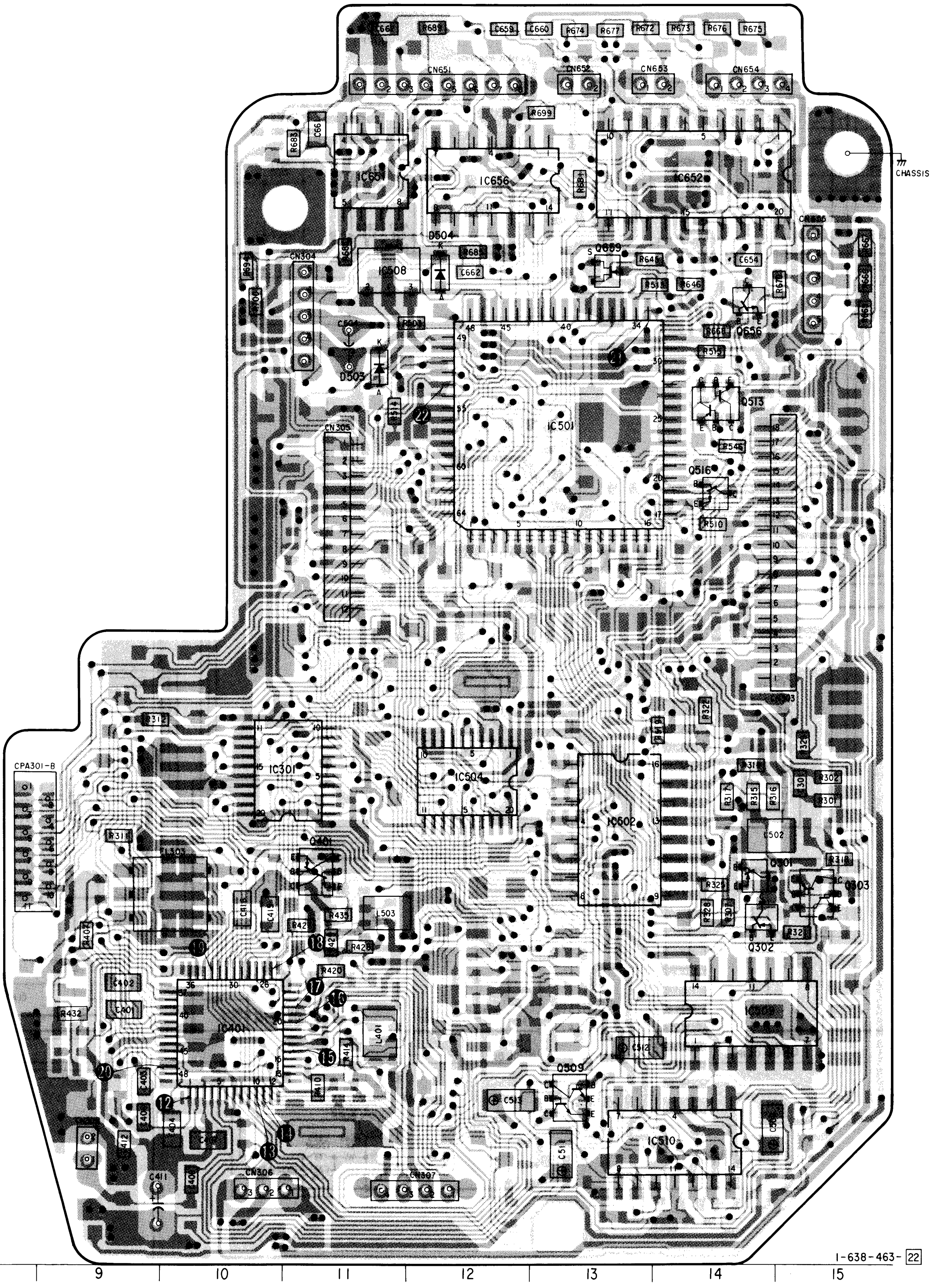
CD-58P (CCD IMAGER), VC-94P (CAMERA PROCESS, ZOOM/FOCUS) PRINTED WIRING BOARDS

—Ref. No. CD-58P and, VC-94P BOARDS : 1000 series—

VC-94P BOARD (COMPONENT SIDE)


A
B
C
D
E
F
G
H
I
J
CHASSIS
MX-10 BOARD HIC301
CN301
CN302
CPA301-A
04
1
2
3
4
5
6
7
8

VC-94P BOARD (CONDUCTOR SIDE)


CHASSIS
CPA301-B
IC501
IC301
IC504
IC502
IC401
IC510
IC656
IC652
1-638-463-22
9
10
11
12
13
14
15

< DIODE >

D501	8-719-404-46	MA110
D502	8-719-404-46	MA110
D503	8-719-404-46	MA110
D504	8-719-404-46	MA110
D600	8-719-420-90	MA8051-M

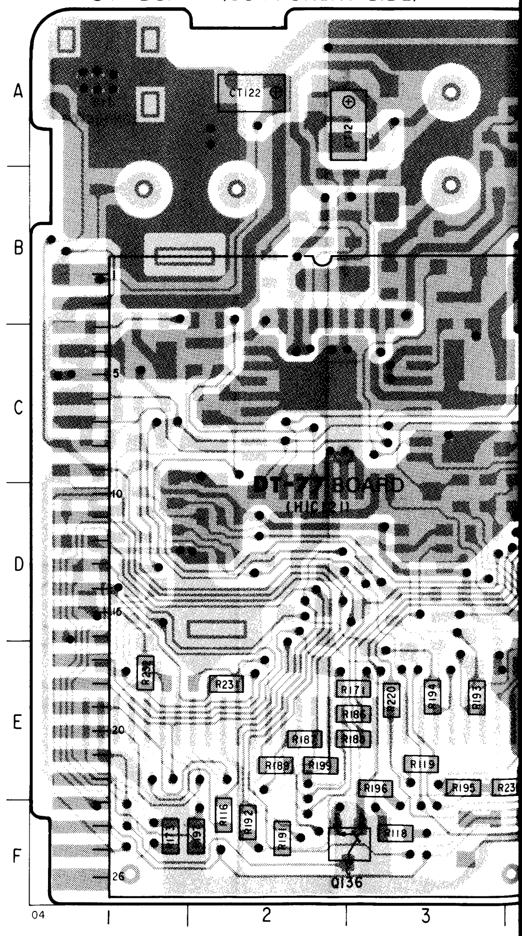
< IC >

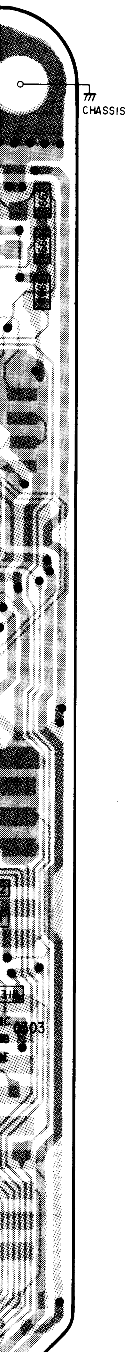
IC301	8-759-946-00	MB88341PFV
IC401	8-752-038-XX	CXA1392R
IC501	8-759-038-86	MC68HC11E9FU-SC400225
IC502	8-759-008-95	MC14028BF
IC504	8-759-635-27	M62352GP
IC508	8-759-937-56	S-8054ALB-LM-S
IC509	8-759-509-05	XRU4066BF
IC510	8-759-998-96	LM324D
IC651	8-759-981-82	RC3414M
IC652	8-759-037-20	MPC1737M
IC653	8-759-998-98	LM358D
IC656	8-759-998-96	LM324D

< TR

Q301
Q302
Q303
Q401
Q402
Q403
Q404
Q502
Q504
Q505
Q506
Q507
Q508
Q509
Q510

CD-58P BOARD (COMPONENT SIDE)


A
B
C
D
E
F
DT-77 BOARD
Q136
04
1
2
3


CHASSIS
1-638-463- 22
5

< DIODE >

D501	8-719-404-46	MA110
D502	8-719-404-46	MA110
D503	8-719-404-46	MA110
D504	8-719-404-46	MA110
D600	8-719-420-90	MA8051-M

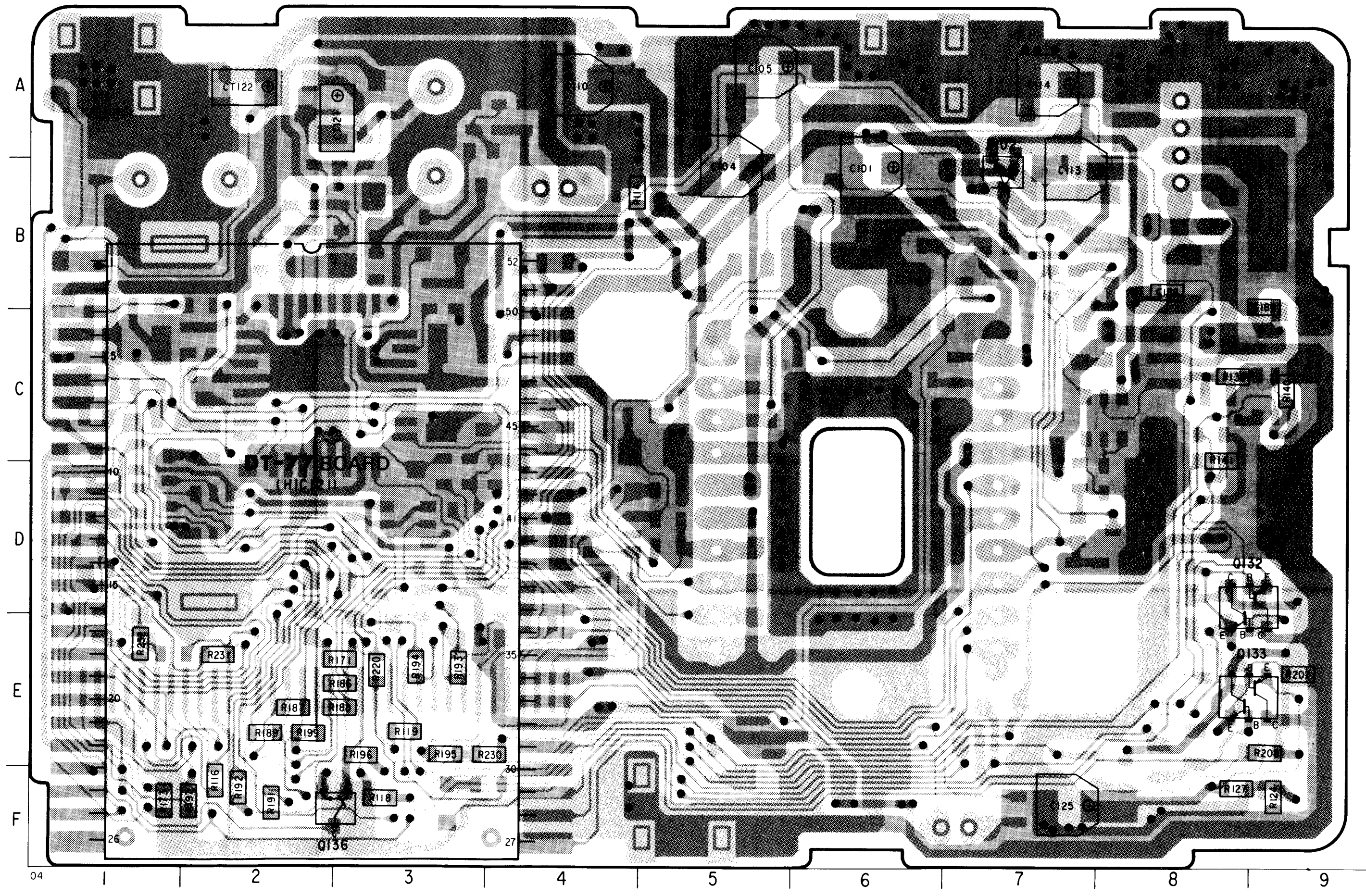
< IC >

IC301	8-759-946-00	MB88341PFV
IC401	8-752-038-XX	CXA1392R
IC501	8-759-038-86	MC68HC11E9FU-SC400225
IC502	8-759-008-95	MC14028BF
IC504	8-759-635-27	M62352GP
IC508	8-759-937-56	S-8054ALB-LM-S
IC509	8-759-509-05	XRU4066BF
IC510	8-759-998-96	LM324D
IC651	8-759-981-82	RC3414M
IC652	8-759-037-20	MPC1737M
IC653	8-759-998-98	LM358D
IC656	8-759-998-96	LM324D

< TRANSISTOR >

Q301	8-729-905-23	2SA1576-R
Q302	8-729-905-23	2SA1576-R
Q303	8-729-402-84	XN4601
Q401	8-729-402-84	XN4601
Q402	8-729-402-84	XN4601
Q403	8-729-905-23	2SA1576-R
Q404	8-729-905-35	2SC4081-R
Q502	8-729-420-50	UN5215
Q504	8-729-403-10	XN6215
Q505	8-729-403-10	XN6215
Q506	8-729-420-07	XN6213
Q507	8-729-420-50	UN5215
Q508	8-729-402-78	XN6401
Q509	8-729-403-10	XN6215
Q510	8-729-905-35	2SC4081-R
Q513	8-729-402-84	XN4601
Q516	8-729-905-35	2SC4081-R
Q651	8-729-905-23	2SA1576-R
Q653	8-729-106-60	2SB1115A
Q654	8-729-905-35	2SC4081-R
Q655	8-729-905-35	2SC4081-R
Q656	8-729-905-35	2SC4081-R
Q657	8-729-402-84	XN4601
Q658	8-729-402-84	XN4601
Q659	8-729-821-88	2SK1332-3

CD-58P BOARD (COMPONENT SIDE)


A
B
C
D
E
F
04
1
2
3
4
5
6
7
8
9
DT-77 BOARD
CT122
Q136
Q132
Q133
Q125
C101
Q105
Q104
Q113
R231
R171
R186
R187
R188
R189
R195
R196
R230
R118
R119
R220
R207
R208
R127
R124
R141
R146
52
50
45
41
35
30
27
26
20
15
10
5
1

< DIODE >

D101	8-719-404-46	MA110
D102	8-719-404-52	MA143
D122	8-719-404-32	MA141WA
D123	8-719-404-46	MA110
D124	8-719-404-32	MA141WA
D125	8-719-949-46	1T32
D128	8-719-404-46	MA110

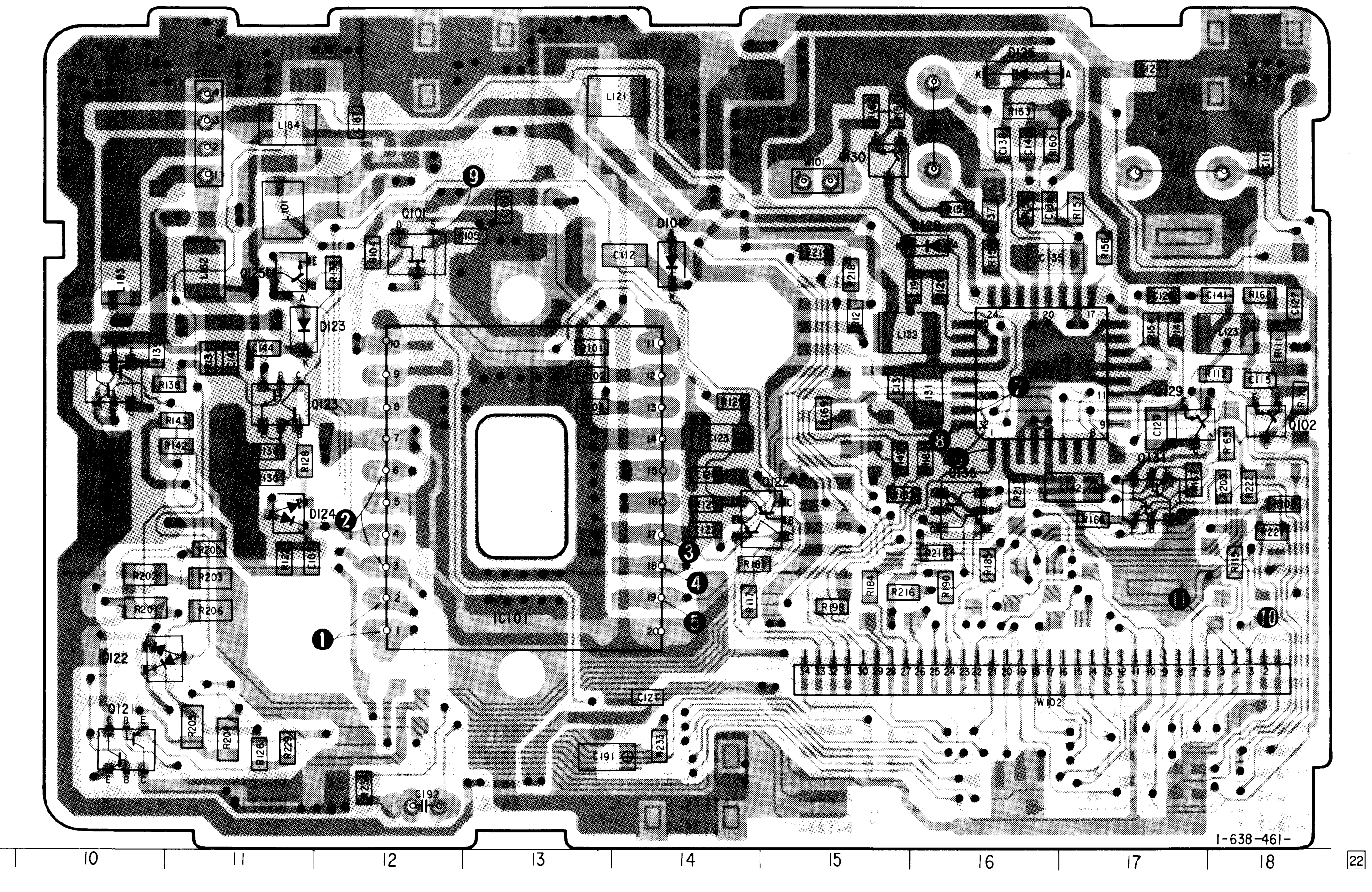
< IC >

IC121	8-752-326-08	CXD1159Q

< TRANSISTOR >

Q101	8-765-420-02	2SK300-3
Q102	8-729-905-35	2SC4081-R
Q121	8-729-402-84	XN4601
Q122	8-729-402-78	XN6401
Q123	8-729-402-19	XN6501
Q125	8-729-905-35	2SC4081-R
Q126	8-729-402-84	XN4601
Q129	8-729-905-23	2SA1576-R
Q130	8-729-905-35	2SC4081-R
Q131	8-729-402-84	XN4601
Q132	8-729-402-84	XN4601
Q133	8-729-402-84	XN4601
Q135	8-729-402-84	XN4601
Q136	8-729-402-45	UN5212

CD-58P BOARD (CONDUCTOR SIDE)


10
11
12
13
14
15
16
17
18
1-638-461-
22
IC101
W102
Q101
Q102
Q121
Q122
Q123
Q125
Q129
Q130
Q135
D101
D122
D123
D124
D125
L121
L122
L123
L184
C112
C192
R202
R203
R205
R206
R216
❶
❷
❸
❹
❺
❼
❽
❾
❿
⓫

8-729-402-84	XN4601
8-729-905-35	2SC4081-R
8-729-905-23	2SA1576-R
8-729-106-60	2SB1115A
8-729-905-35	2SC4081-R
8-729-905-35	2SC4081-R
8-729-905-35	2SC4081-R
8-729-402-84	XN4601
8-729-402-84	XN4601
8-729-821-88	2SK1332-3

< DIODE >

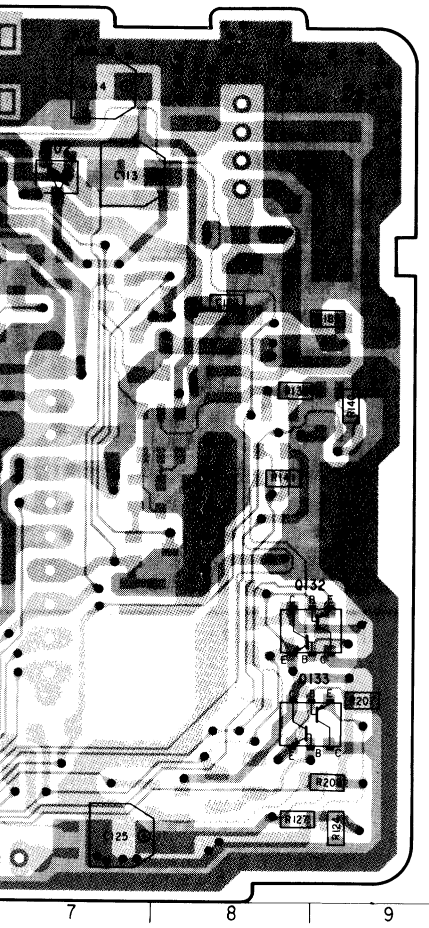
D101	8-719-404-46	MA110
D102	8-719-404-52	MA143
D122	8-719-404-32	MA141WA
D123	8-719-404-46	MA110
D124	8-719-404-32	MA141WA
D125	8-719-949-46	1T32
D128	8-719-404-46	MA110

< IC >

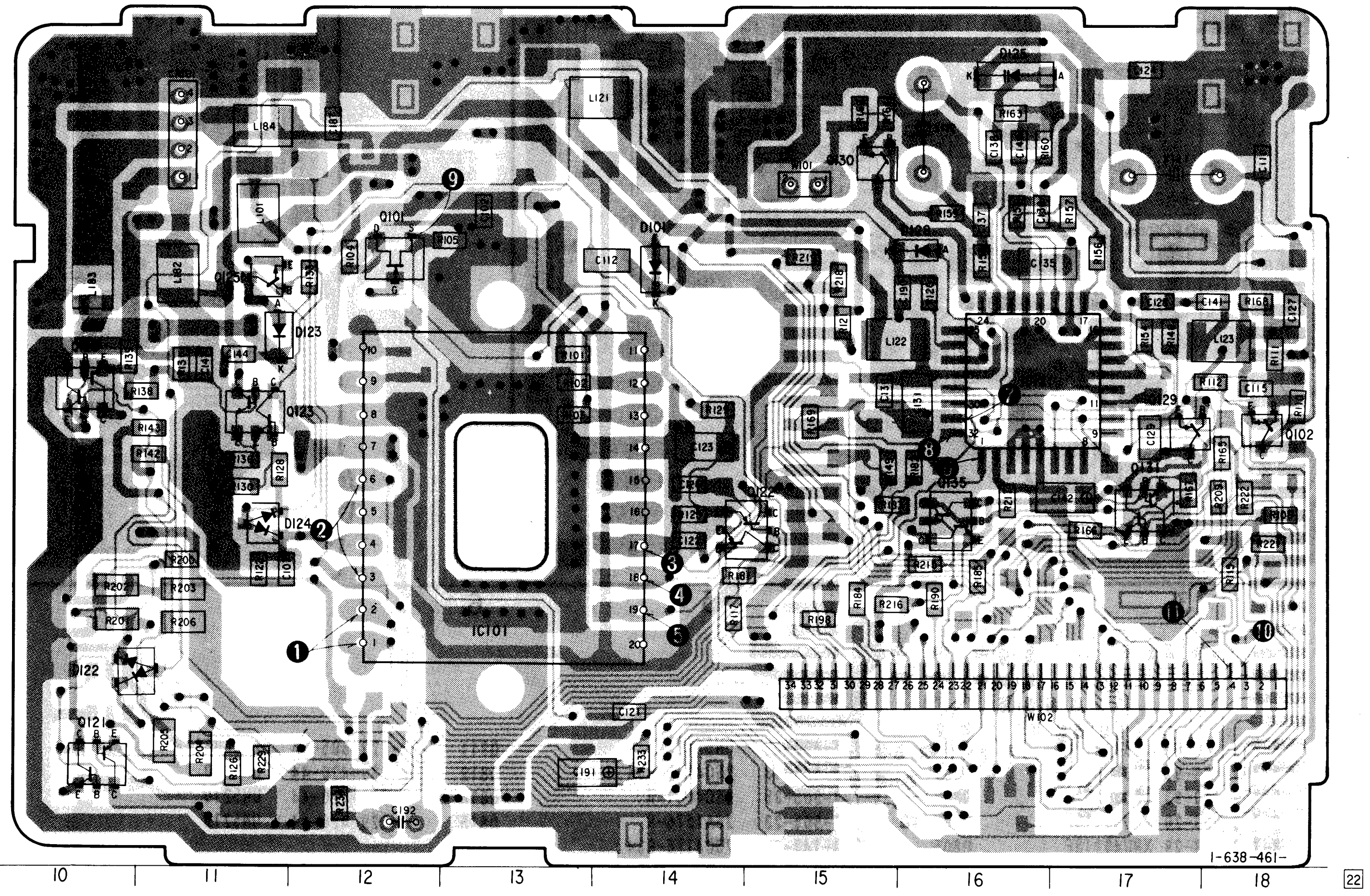
IC121	8-752-326-08	CXD1159Q

< TRANSISTOR >

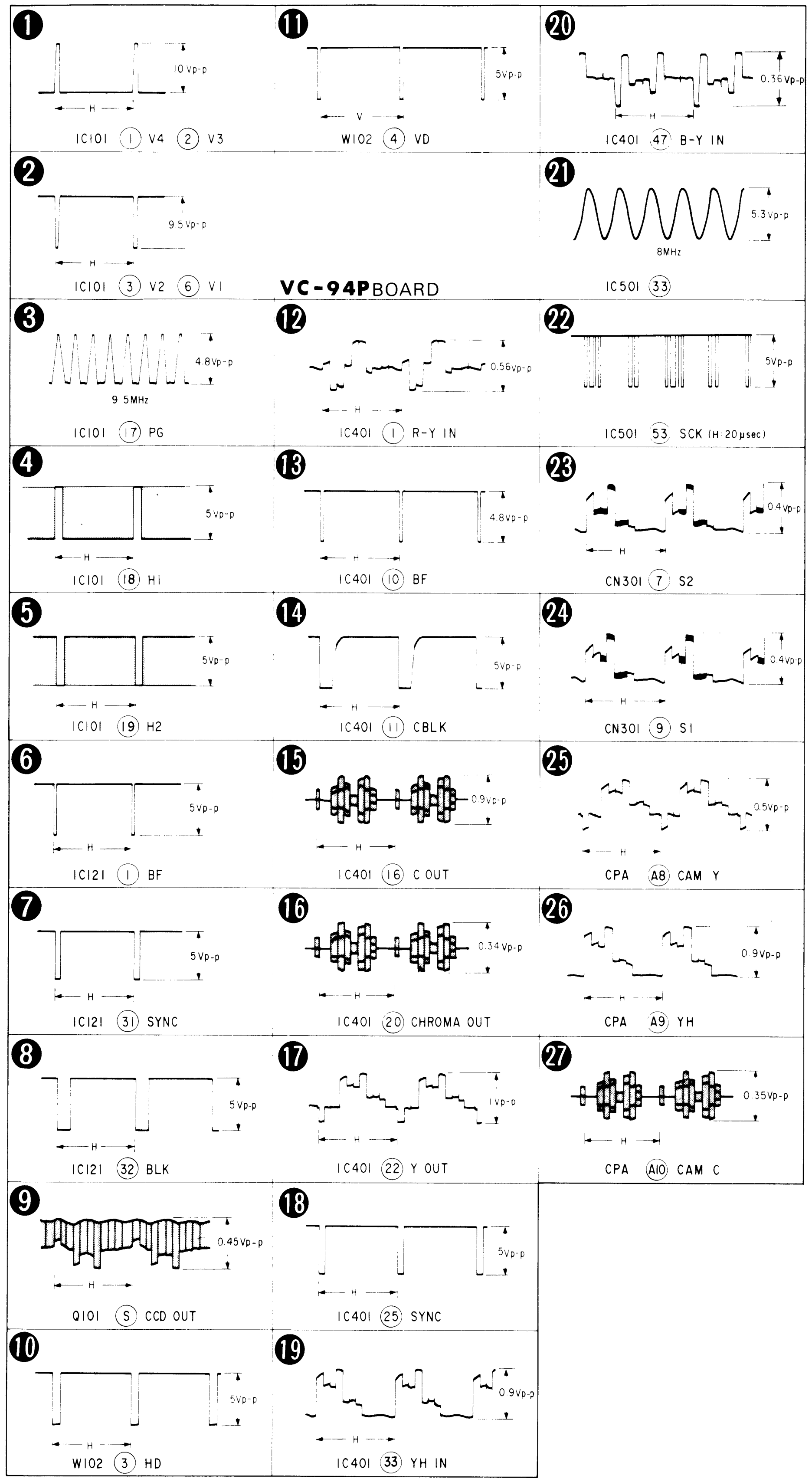
Q101	8-765-420-02	2SK300-3
Q102	8-729-905-35	2SC4081-R
Q121	8-729-402-84	XN4601
Q122	8-729-402-78	XN6401
Q123	8-729-402-19	XN6501
Q125	8-729-905-35	2SC4081-R
Q126	8-729-402-84	XN4601
Q129	8-729-905-23	2SA1576-R
Q130	8-729-905-35	2SC4081-R
Q131	8-729-402-84	XN4601
Q132	8-729-402-84	XN4601
Q133	8-729-402-84	XN4601
Q135	8-729-402-84	XN4601
Q136	8-729-402-45	UN5212


Q113
Q132
Q133
R127
R125
7
8
9

CD-58P BOARD (CONDUCTOR SIDE)


IC101
Q101
Q102
Q121
Q122
Q123
Q125
Q135
D101
D123
D124
L121
L122
L184
W101
W102
C112
C191
C192
1-638-461-
10
11
12
13
14
15
16
17
18
22

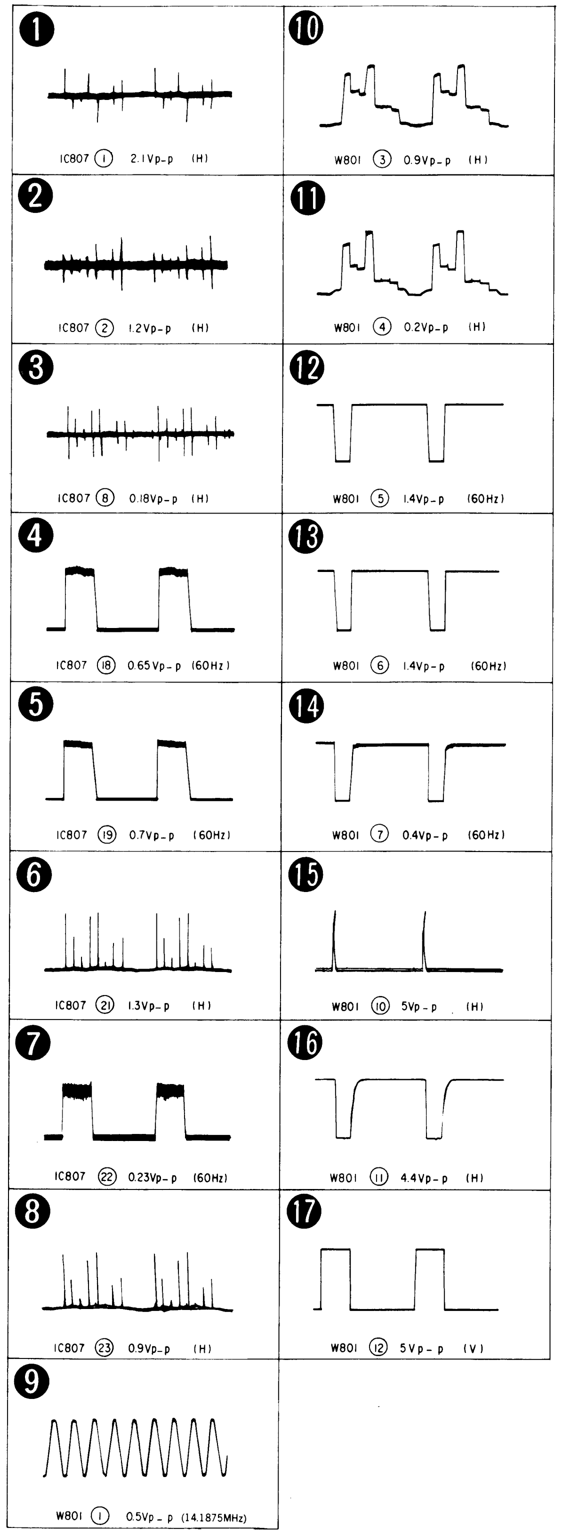
CD-58P BOARD



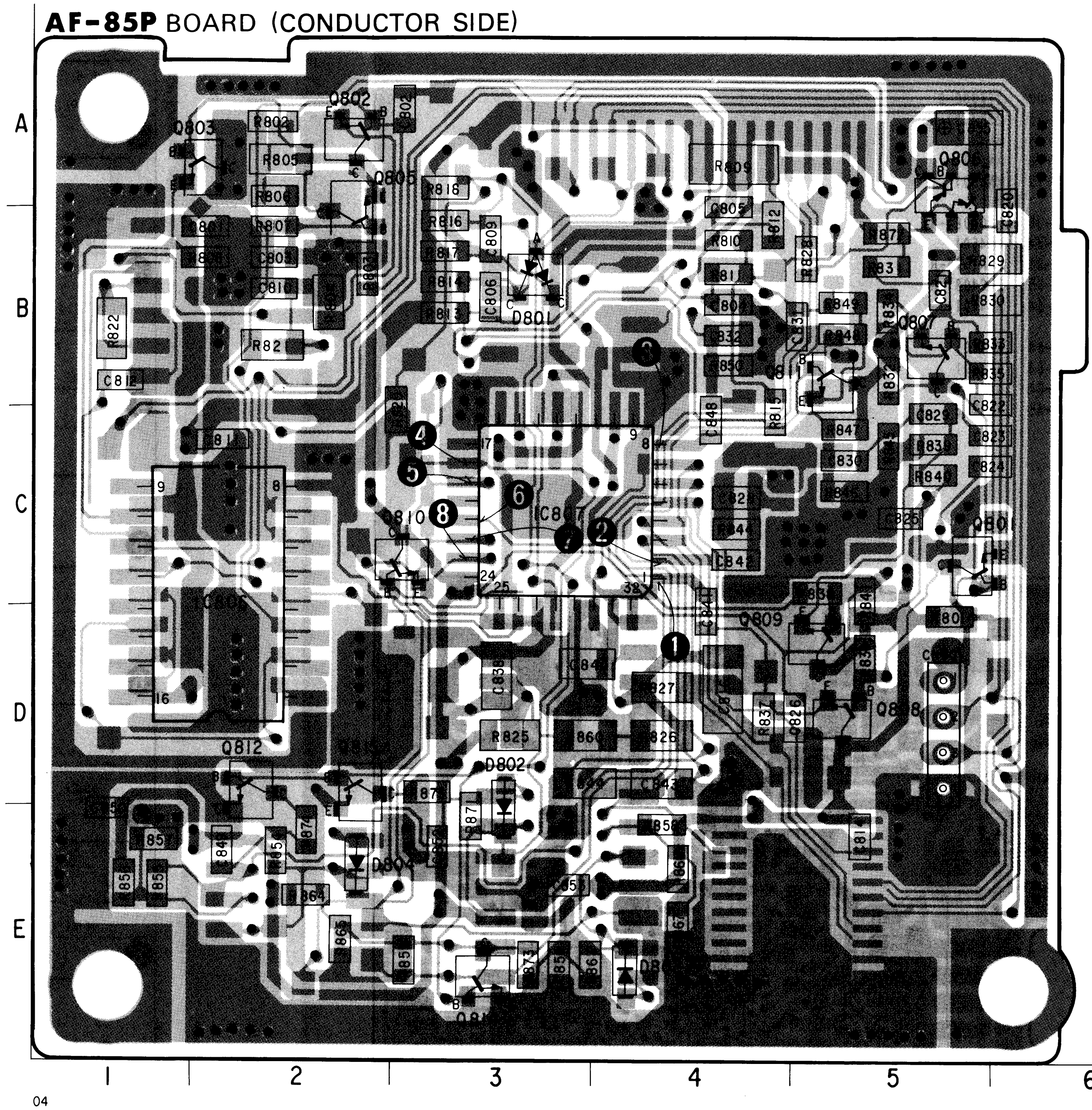
AF-85P (AUTO FOCUS) PRINTED WIRING BOARD

—Ref. No. AF-85P BOARD: 1000 series—

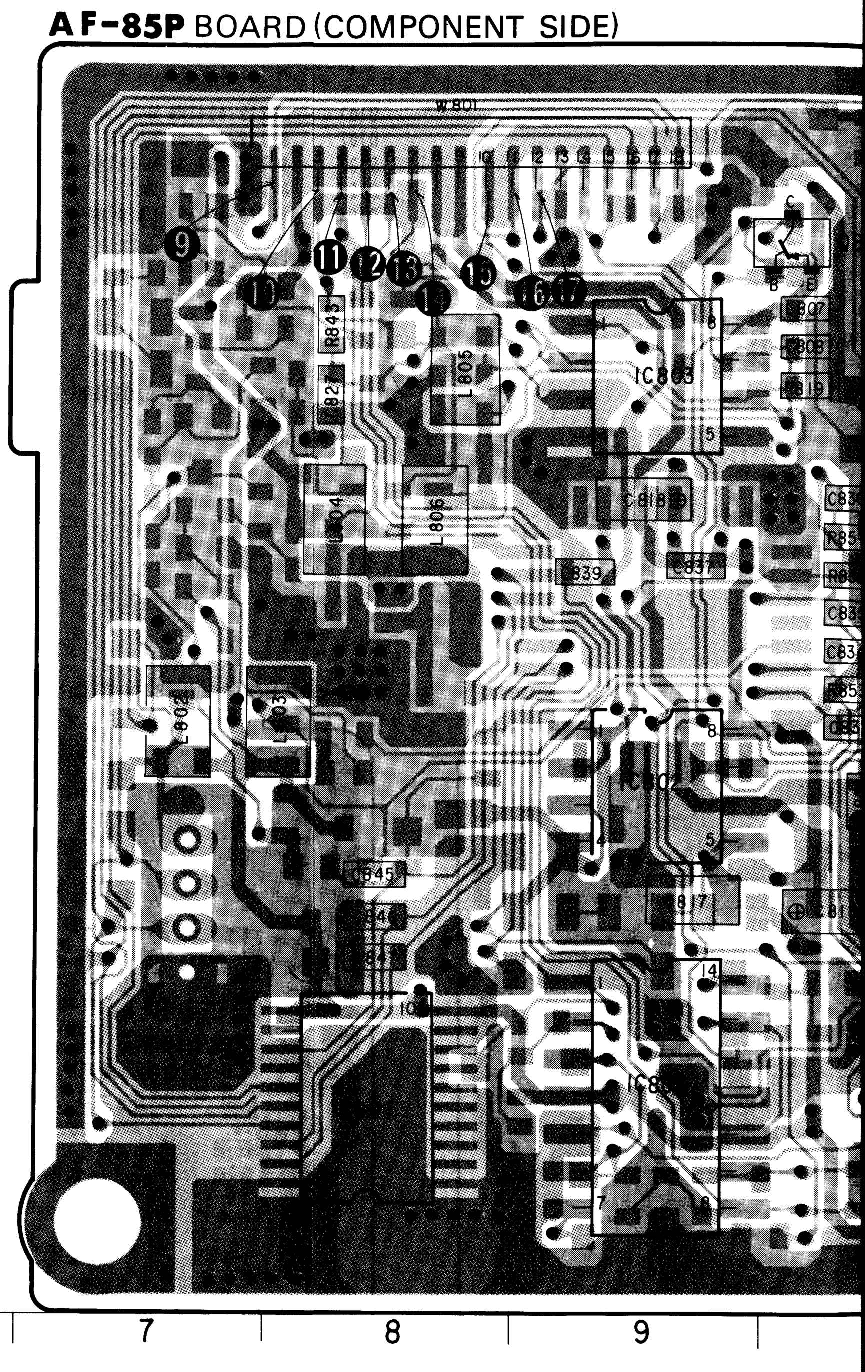
AF-85P BOARD



AF-85P BOARD (CONDUCTOR SIDE)


A
B
C
D
E
1
2
3
4
5
6
Q803
Q802
R804
R805
R806
R807
Q805
R816
R816
R817
R814
R813
C809
C806
D801
R809
C805
R810
R811
R812
R823
Q806
R820
R829
R830
R822
C812
R821
C848
R815
R847
C830
C829
R846
C827
C823
C824
IC801
IC807
Q810
Q807
Q801
Q809
Q808
Q812
D802
R825
R827
R826
D804
R837
C843
R836
C838
04

AF-85P BOARD (COMPONENT SIDE)


W801
10
12
13
14
15
16
17
18
❾
⓫
⓬
⓭
⓮
⓯
⓰
⓱
⓾
R845
R824
L805
L804
L806
IC803
C818
C839
C837
R807
R808
R819
L802
L803
IC802
C845
C846
C847
C817
IC806
7
8
9

< DIODE >

D801	8-719-404-32	MA141WA
D802	8-719-404-46	MA110
D803	8-719-404-46	MA110
D804	8-719-404-46	MA110

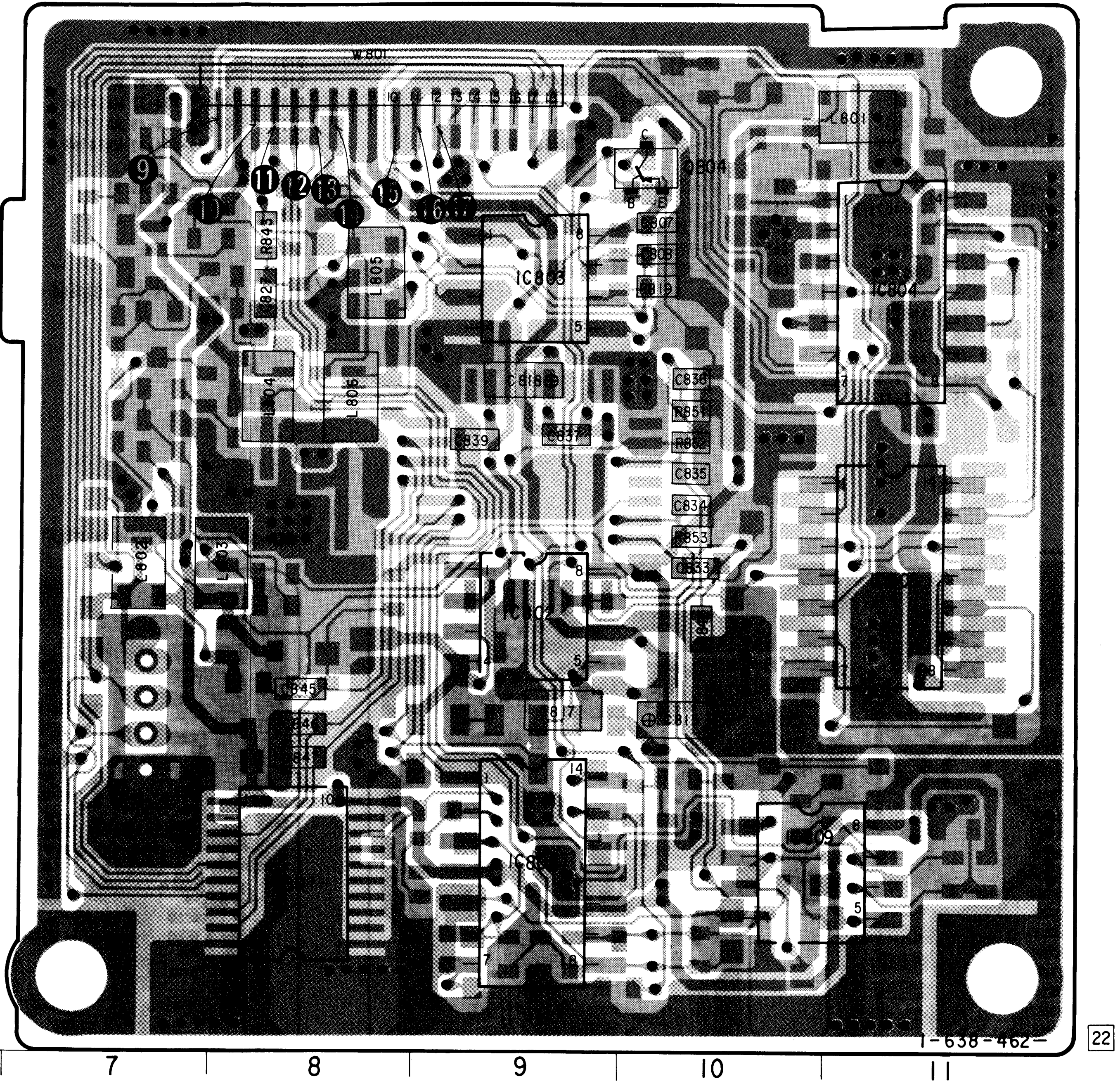
< IC >

IC801	8-759-946-00	MB88341PFV
IC802	8-759-998-98	LM358D
IC803	8-759-100-93	uPC393G2
IC804	8-759-509-29	XRU4011BF
IC805	8-759-509-29	XRU4011BF
IC806	8-759-926-98	SN74HC4040NS
IC807	8-752-055-56	CXA1516Q
IC808	8-759-998-96	LM324D
IC809	8-759-998-98	LM358D

< TRANSISTOR >

Q801	8-729-402-45	UN5212
Q802	8-729-143-13	2SC4176-B34
Q803	8-729-905-35	2SC4081-R
Q804	8-729-905-23	2SA1576-R
Q805	8-729-143-13	2SC4176-B34
Q806	8-729-402-78	XN6401
Q807	8-729-905-35	2SC4081-R
Q808	8-729-905-35	2SC4081-R
Q809	8-729-905-35	2SC4081-R
Q810	8-729-905-35	2SC4081-R
Q811	8-729-905-35	2SC4081-R
Q812	8-729-420-44	UN5210
Q814	8-729-420-44	UN5210
Q815	8-729-420-44	UN5210

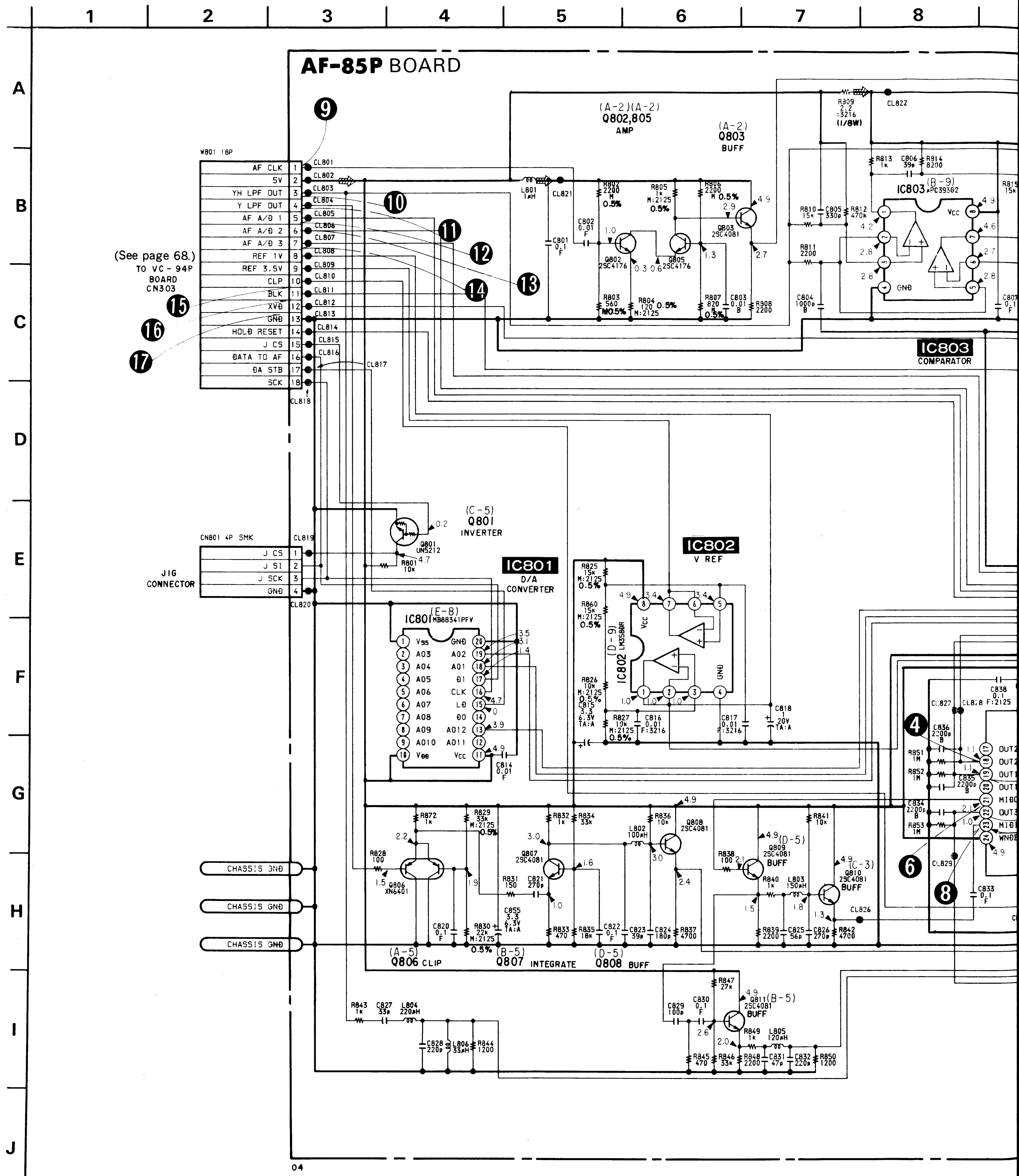
AF-85P BOARD (COMPONENT SIDE)


W801
Q804
C801
IC803
IC804
L805
R843
R821
L804
L806
C818
C836
R851
R852
C835
C834
C853
C839
C837
L802
L803
IC802
C845
IC801
Q809
1-638-462-
22
7
8
9
10
11

8-729-905-35	2SC4081-R
8-729-420-44	UN5210
8-729-420-44	UN5210
8-729-420-44	UN5210

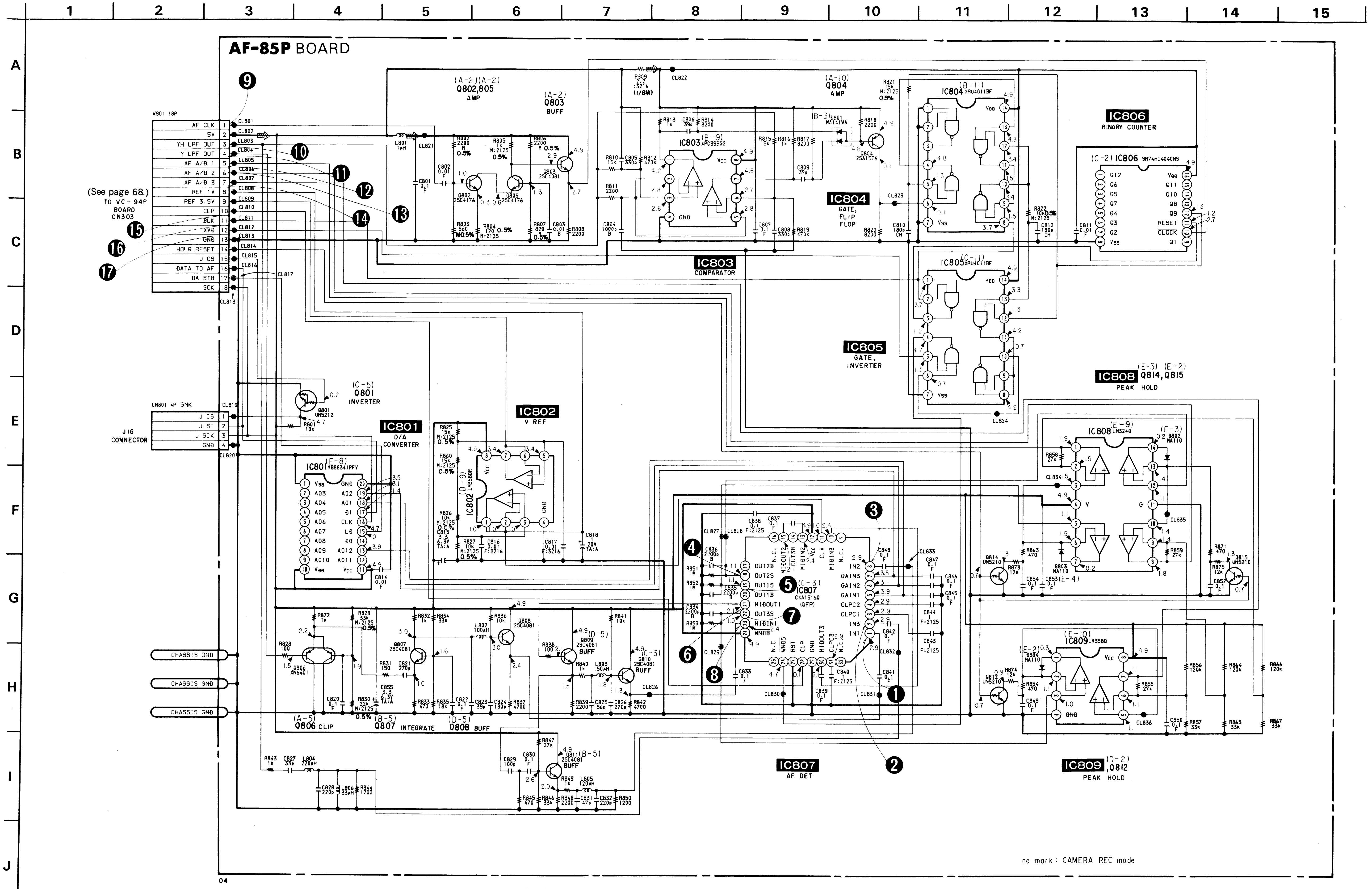
AF-85P (AUTO FOCUS) SCHEMATIC DIAGRAM

—Ref. No. AF-85P BOARD : 1000 series—


1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
AF-85P BOARD
W801 18P
AF CLK
5V
YH LPF OUT
Y LPF OUT
AF A/Ø 1
AF A/Ø 2
AF A/Ø 3
REF 1V
REF 3.5V
CLP
BLK
XVØ
GNØ
HOLØ RESET
J CS
ØATA TO AF
ØA STB
SCK
(See page 68.)
TO VC-94P BOARD CN303
(A-2)(A-2) Q802,805 AMP
(A-2) Q803 BUFF
IC803 μPC393G2
IC803 COMPARATOR
(C-5) Q801 INVERTER
IC801 D/A CONVERTER
IC802 V REF
(E-8) IC801 MB88341PFV
(D-9) IC802 LM358BM
CN801 4P SMK
JIG CONNECTOR
J CS
J SI
J SCK
GNØ
CHASSIS GNØ
CHASSIS GNØ
CHASSIS GNØ
(A-5) Q806 CLIP
(B-5) Q807 INTEGRATE
(D-5) Q808 BUFF
(D-5) Q809 2SC4081 BUFF
(C-3) Q810 2SC4081 BUFF
(B-5) Q811 2SC4081 BUFF
04

AF-85P (AUTO FOCUS) SCHEMATIC DIAGRAM

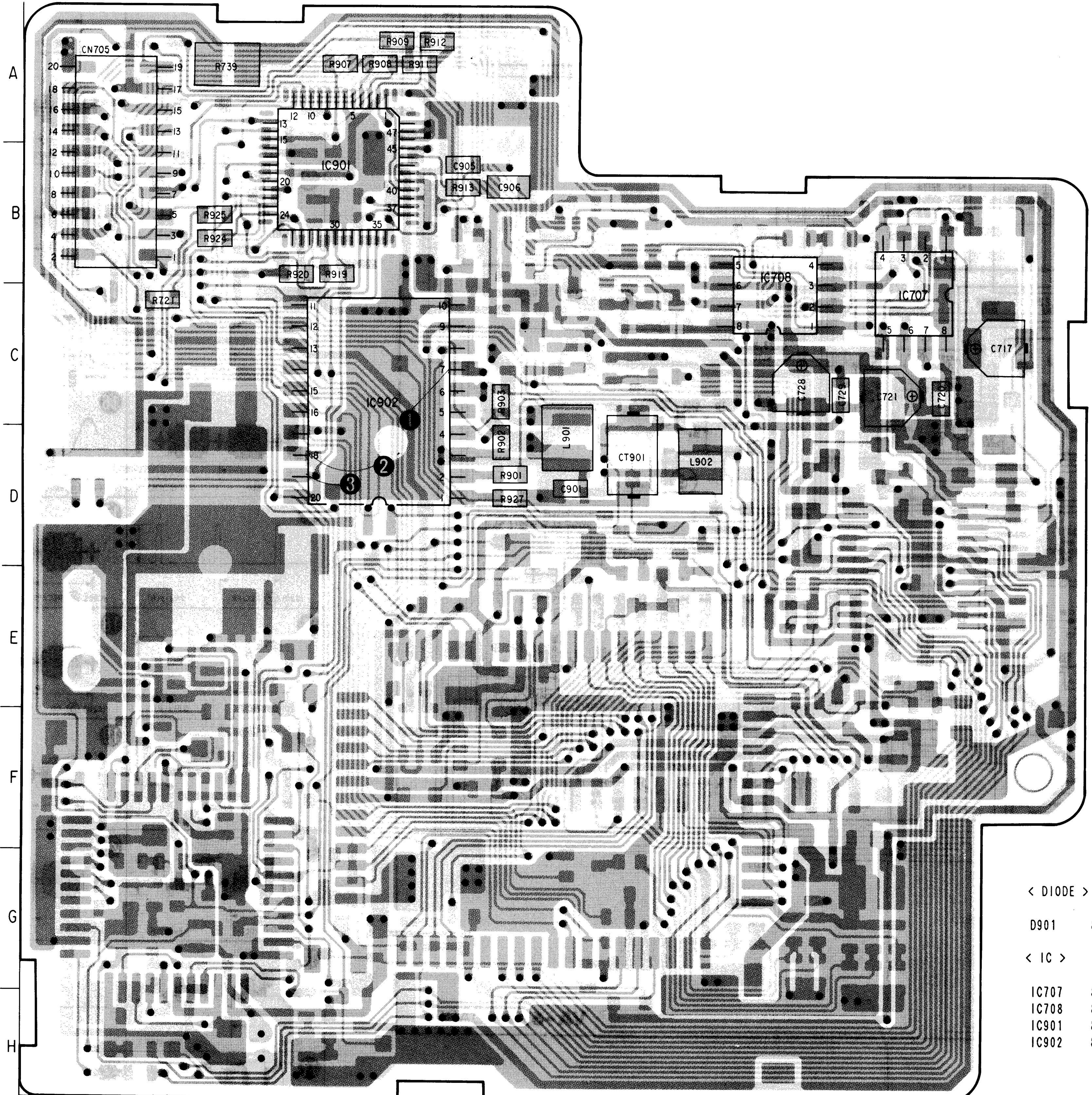
—Ref. No. AF-85P BOARD : 1000 series—


AF-85P BOARD
W801 18P
AF CLK
5V
YH LPF OUT
Y LPF OUT
AF A/D 1
AF A/D 2
AF A/D 3
REF 1V
REF 3.5V
CLP
BLK
XVD
GND
HOLD RESET
J CS
DATA TO AF
DA STB
SCK
(See page 68.)
TO VC-94P BOARD CN303
CN801 4P 5MK
J CS
J SI
J SCK
GND
JIG CONNECTOR
CHASSIS GND
(A-2)(A-2) Q802,805 AMP
(A-2) Q803 BUFF
(A-10) Q804 AMP
(C-5) Q801 INVERTER
IC801 D/A CONVERTER
IC802 V REF
IC803 COMPARATOR
IC804 GATE, FLIP FLOP
IC805 GATE, INVERTER
IC806 BINARY COUNTER
(C-2) IC806 SN74HC4040NS
IC807 AF DET
(C-3) IC807 CXA1516Q (QFP)
(E-3) (E-2) IC808 Q814,Q815 PEAK HOLD
(D-2) IC809 ,Q812 PEAK HOLD
(A-5) Q806 CLIP
(B-5) Q807 INTEGRATE
(D-5) Q808 BUFF
(D-5) Q809 BUFF
(C-3) Q810 BUFF
(B-5) Q811 BUFF
no mark : CAMERA REC mode

CT-38P (CHARACTER GENERATOR) PRINTED WIRING BOARD

—Ref. No. CT-38P BOARD : 2000 series—

CT-38P BOARD (COMPONENT SIDE)



CN705
R739
R909
R912
R907
R908
R911
IC901
C905
R913
C906
R925
R924
R920
R919
R721
IC902
IC708
IC707
C717
C728
C721
L901
CT901
L902
R901
R927
C901
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8

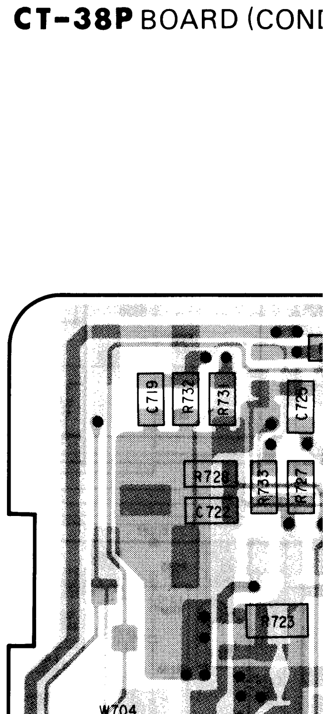
< DIODE >

D901	8-719-949-46	1T32

< IC >

IC707	8-759-710-29	NJM2235M
IC708	8-759-710-09	NJM2233AM
IC901	8-759-970-80	MB673198U
IC902	8-759-148-62	uPD6451GT

CT-38P BOARD (COND

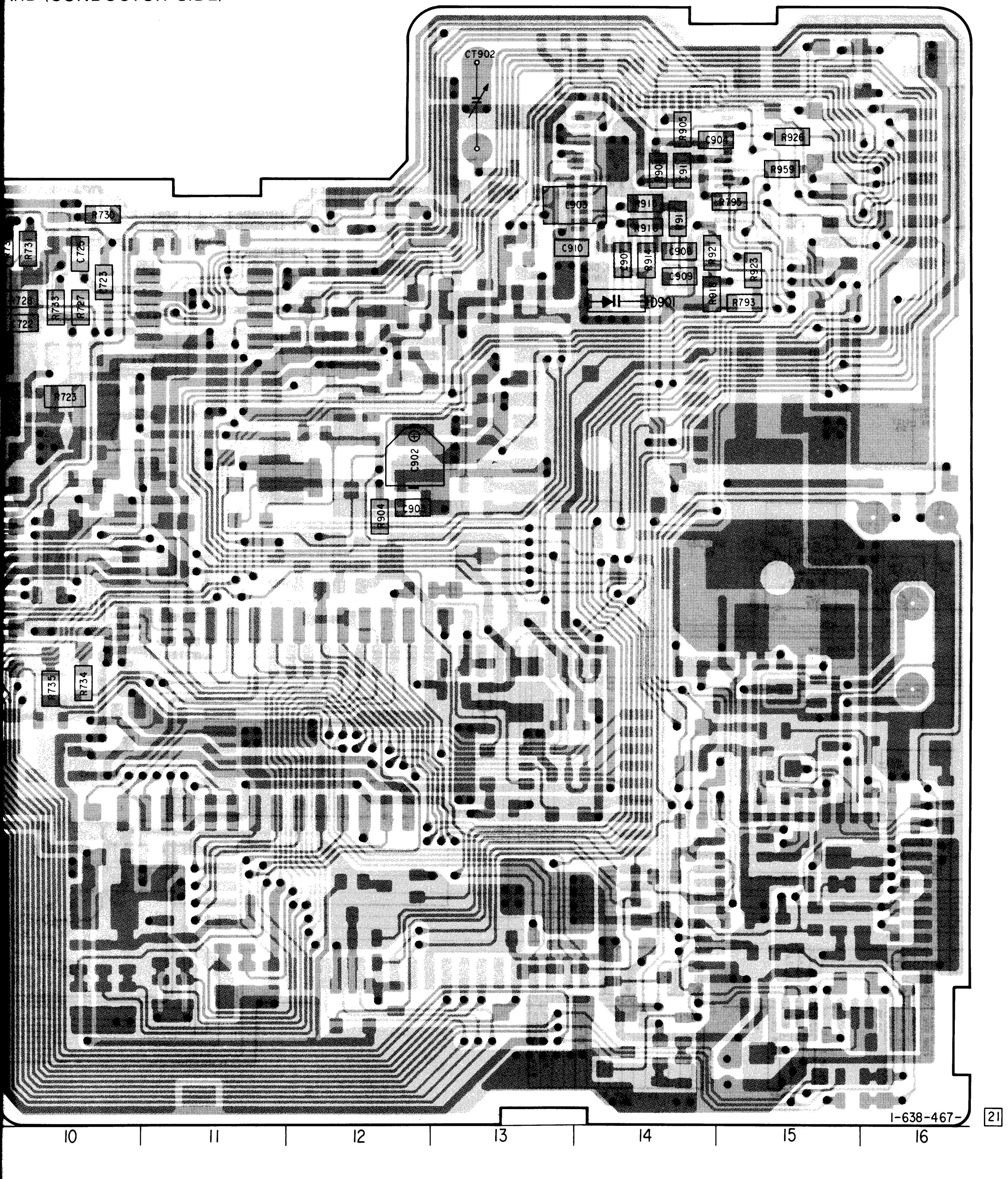


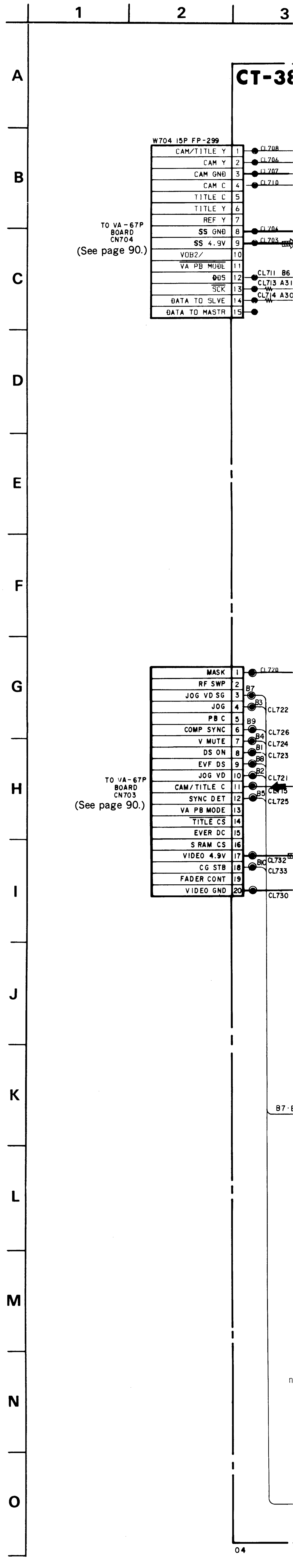
C719
R733
R731
R726
C722
R723
W704
R735
R734
9
10

CT-38P (CHARACTER GENERATOR) SCHE

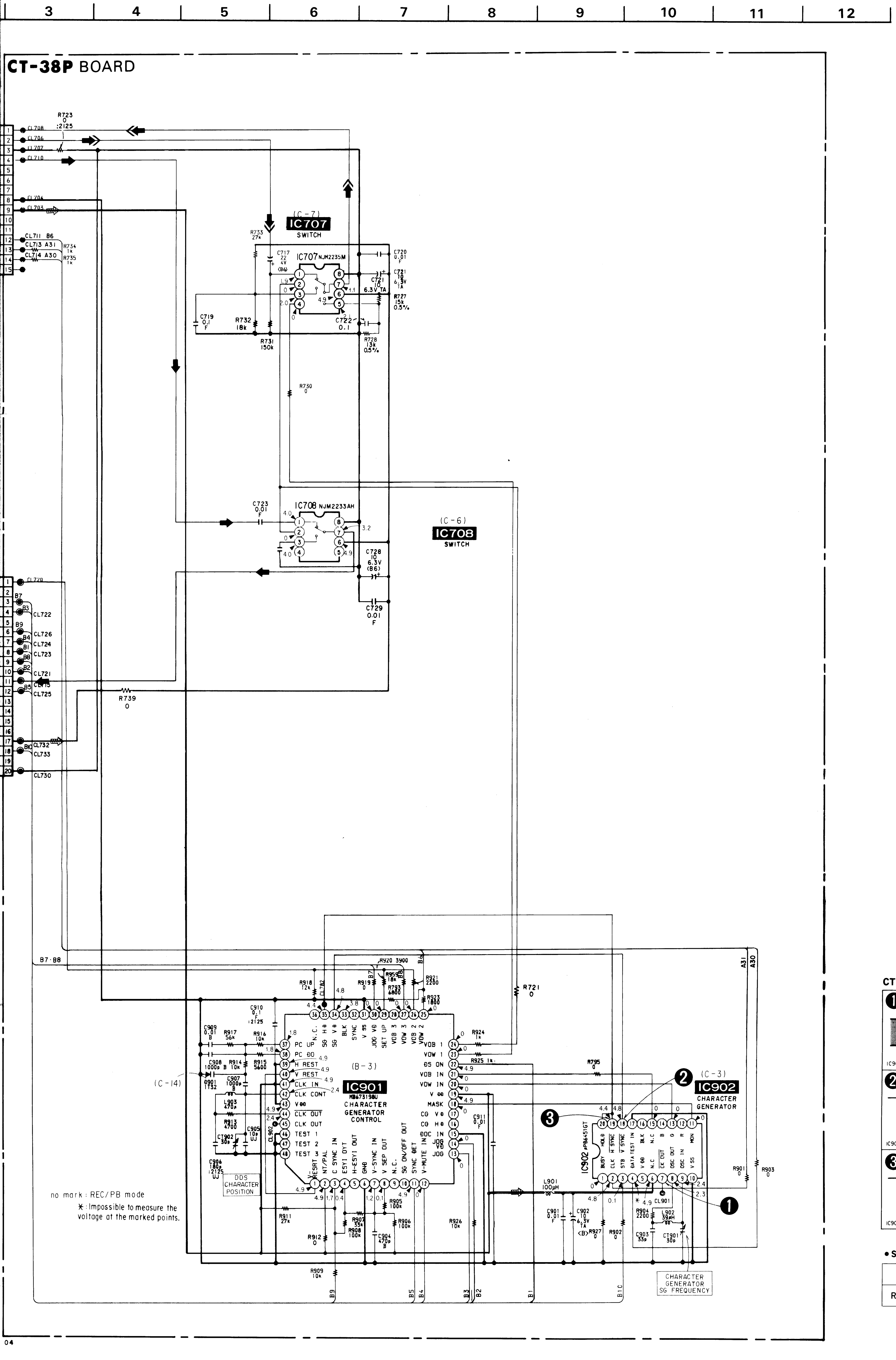
—Ref. No. CT-38P BOARD: 2000 series—

ARD (CONDUCTOR SIDE)


CT902
R730
R73
C725
R723
R727
R733
R723
R735
R734
C904
R926
R905
R959
C903
R911
R910
R795
C910
C908
R927
R923
C909
D901
R793
IC902
C902
R904
1-638-467-
21
10
11
12
13
14
15
16

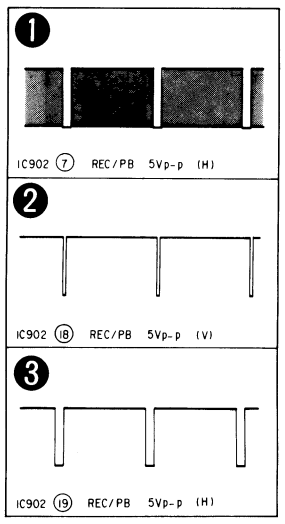

1
2
3
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
CT-38
W704 15P FP-299
CAM/TITLE Y 1
CAM Y 2
CAM GND 3
CAM C 4
TITLE C 5
TITLE Y 6
REF Y 7
SS GND 8
SS 4.9V 9
VOB2/ 10
VA PB MODE 11
DUS 12
SCK 13
DATA TO SLVE 14
DATA TO MASTR 15
TO VA-67P BOARD CN704
(See page 90.)
CL708
CL706
CL707
CL710
CL704
CL703
CL711 B6
CL713 A31
CL714 A30
MASK 1
RF SWP 2
JOG VD SG 3
JOG 4
PB C 5
COMP SYNC 6
V MUTE 7
DS ON 8
EVF DS 9
JOG VD 10
CAM/TITLE C 11
SYNC DET 12
VA PB MODE 13
TITLE CS 14
EVER DC 15
S RAM CS 16
VIDEO 4.9V 17
CG STB 18
FADER CONT 19
VIDEO GND 20
TO VA-67P BOARD CN703
(See page 90.)
CL720
B7
B3
CL722
B9
CL726
B4
CL724
B1
CL723
B8
B2
CL721
CL715
B5
CL725
CL732
B10
CL733
CL730
B7·E
04

CHARACTER GEN


3
4
5
6
7
8
9
10
11
12
CT-38P BOARD
R723 0 :2125
CL708
CL706
CL707
CL710
CL704
CL703
CL711 B6
CL713 A31
CL714 A30
R734 1k
R735 1k
(C-7)
IC707
SWITCH
R733 27k
C717 22 4V (B6)
IC707 NJM2235M
C720 0.01 F
C721 10 6.3V TA
R727 15k 0.5%
C719 0.1 F
R732 18k
R731 150k
C722 0.1
R728 13k 0.5%
R730 0
C723 0.01 F
IC708 NJM2233AH
(C-6)
IC708
SWITCH
C728 10 6.3V (B6)
C729 0.01 F
CL720
CL722
CL726
CL724
CL723
CL721
CL715
CL725
R739 0
CL732
CL733
CL730
B7·B8
R721 0
R920 3900
R918 12k
R919 0
R959 18k
R793 6800
R921 2200
R923 1800
C910 0.1 F :2125
C909 0.01 B
R917 56k
R916 10k
C908 1000p B
R914 10k
R915 5600
(C-14)
D901 1T32
C907 1000p B
L903 470μ
R913 4700
CT902 30p
C905 10μ UJ
C906 180p :2125 UJ
DDS CHARACTER POSITION
PC UP
PC DD
H REST
V REST
CLK IN
CLK CONT
V DD
CLK OUT
CLK OUT
TEST 1
TEST 2
TEST 3
(B-3)
IC901
MB673198U
CHARACTER GENERATOR CONTROL
VOB 1
VOW 1
DS ON
VOB IN
VOW IN
V DD
MASK
CG VΘ
CG HΘ
DDC IN
JOG VΘ
JOG
R924 1k
R925 1k
C911 0.01 F
R795 0
(C-3)
IC902
CHARACTER GENERATOR
IC902 μPB6451GT
HOLD
BUSY
CLK
H SYNC
STB
V SYNC
DATA TEST IN
V DD
BLK
N.C
N.C
CK OUT
B
OSC IN
G
OSC OUT
R
V SS
MON
R901 0
R903 0
L901 100μH
C901 0.01 F
C902 10 6.3V TA
<B>R927 0
R902 0
R904 2200
L902 39μH
C903 33p
CT901 30p
CL901
CHARACTER GENERATOR SG FREQUENCY
R905 100k
R907 33k
R908 100k
R906 100k
C904 470p B
R926 10k
R911 27k
R912 0
R909 10k
B9
B5
B4
B3
B2
B1
B1C
A31
A30
04

no mark : REC/PB mode
✱ : Impossible to measure the voltage at the marked points.

CT-38P BOARD



- Signal path

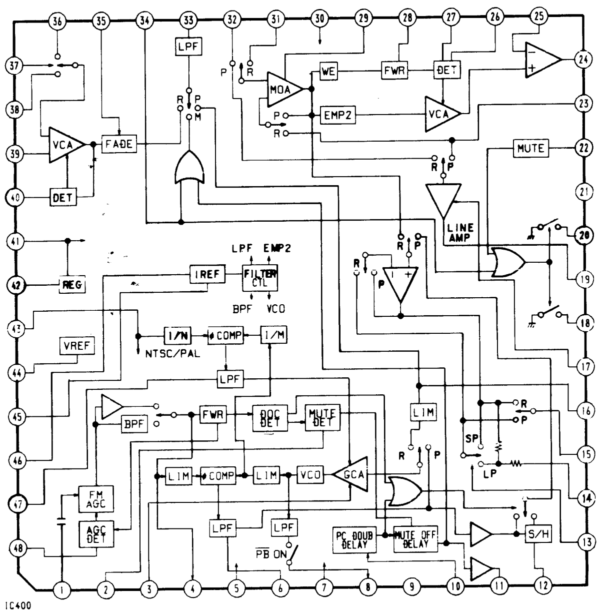
	VIDEO Signal		
	CHROMA	Y	Y/CH
REC	➡	⇛	➡

VA-67P (VIDEO/AUDIO) SCHEMATIC DIAGRAM

—Ref. No. VA-67P BOARD : 2000 series—

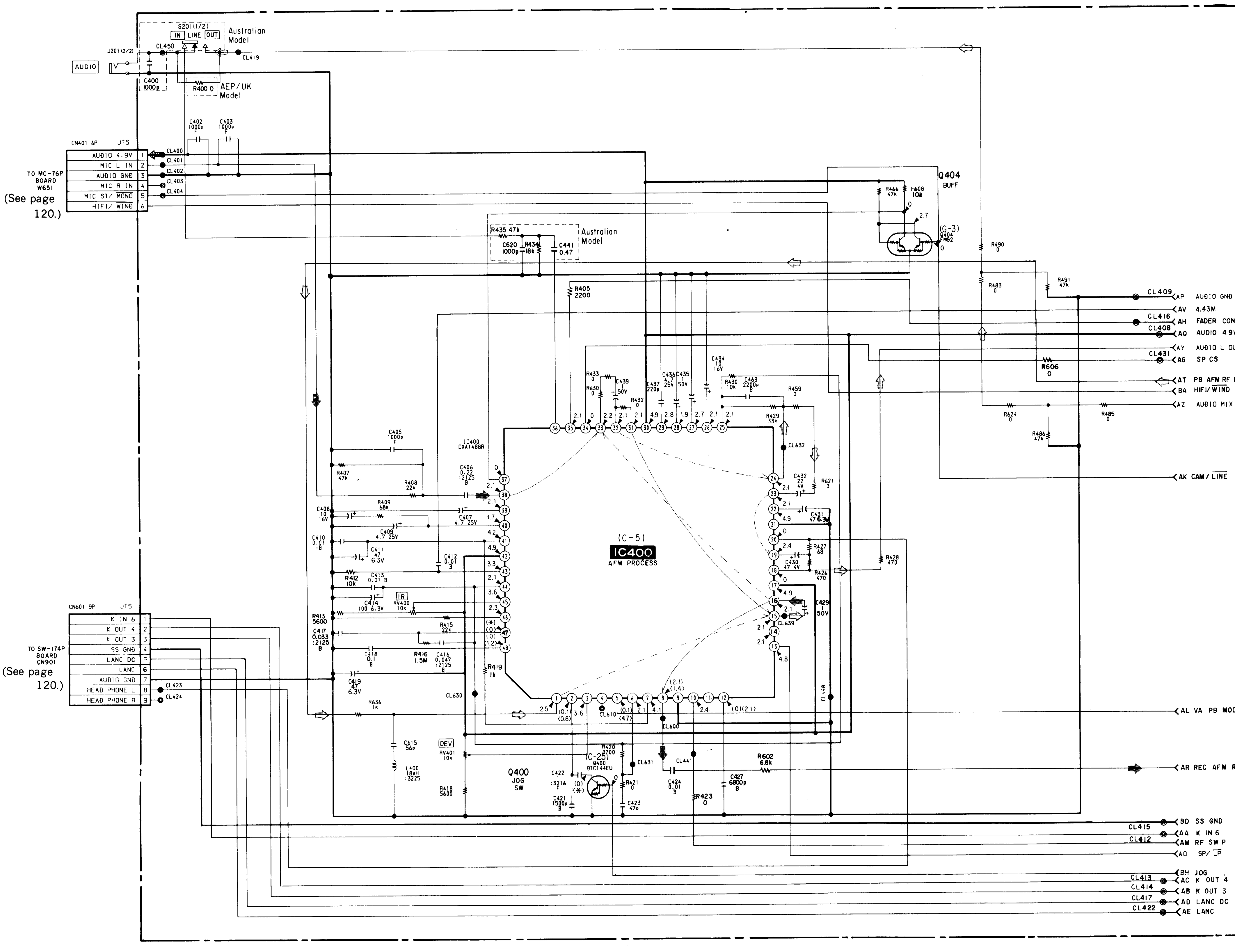
• Signal path

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡➡	➡➡➡	➡
PB	⇨	⇨⇨	⇨⇨⇨	⇨

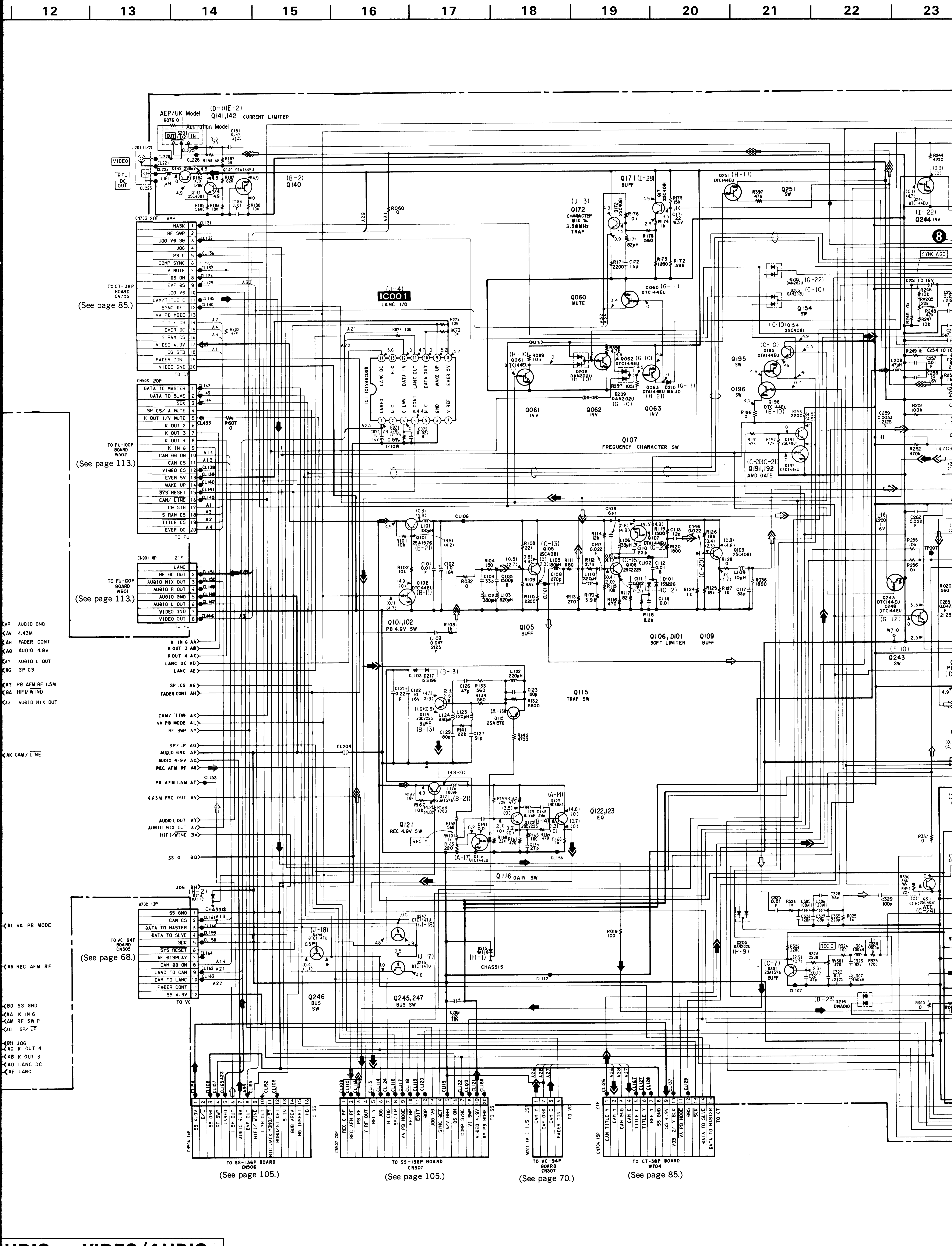


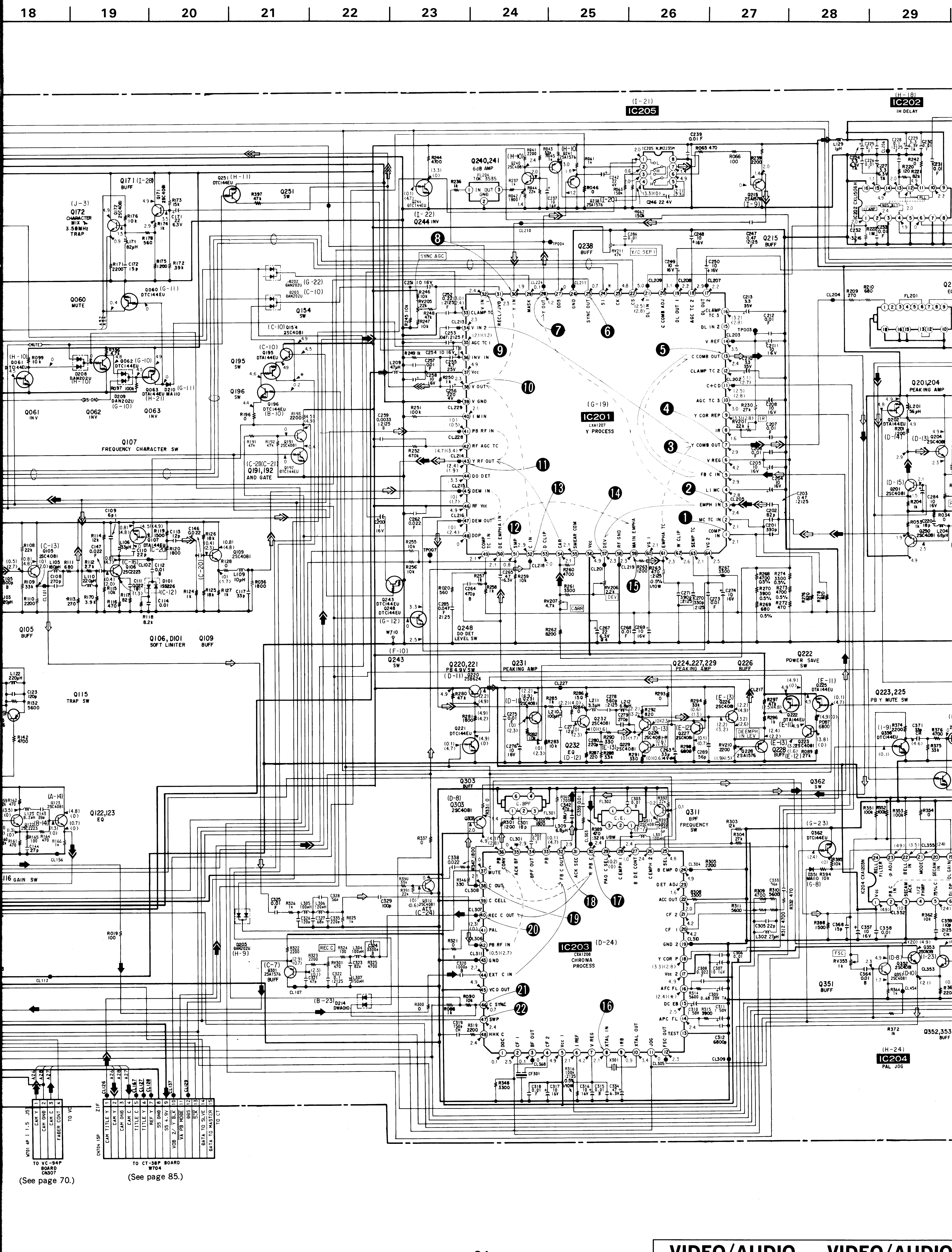
IC400 CXA1488R
LPF
WE
FWR
DET
MOA
EMP2
VCA
FADE
MUTE
LINE AMP
LPF EMP2
FILTER CTL
BPF VCO
IREF
REG
VREF
1/N
φ COMP
NTSC/PAL
BPF
FWR
DOC DET
MUTE DET
LIM
SP
LP
LIM
COMP
VCO
GCA
FM AGC
AGC DET
PC BOUB DELAY
MUTE OFF DELAY
S/H
PB ON

IC400 AFM PROCESS

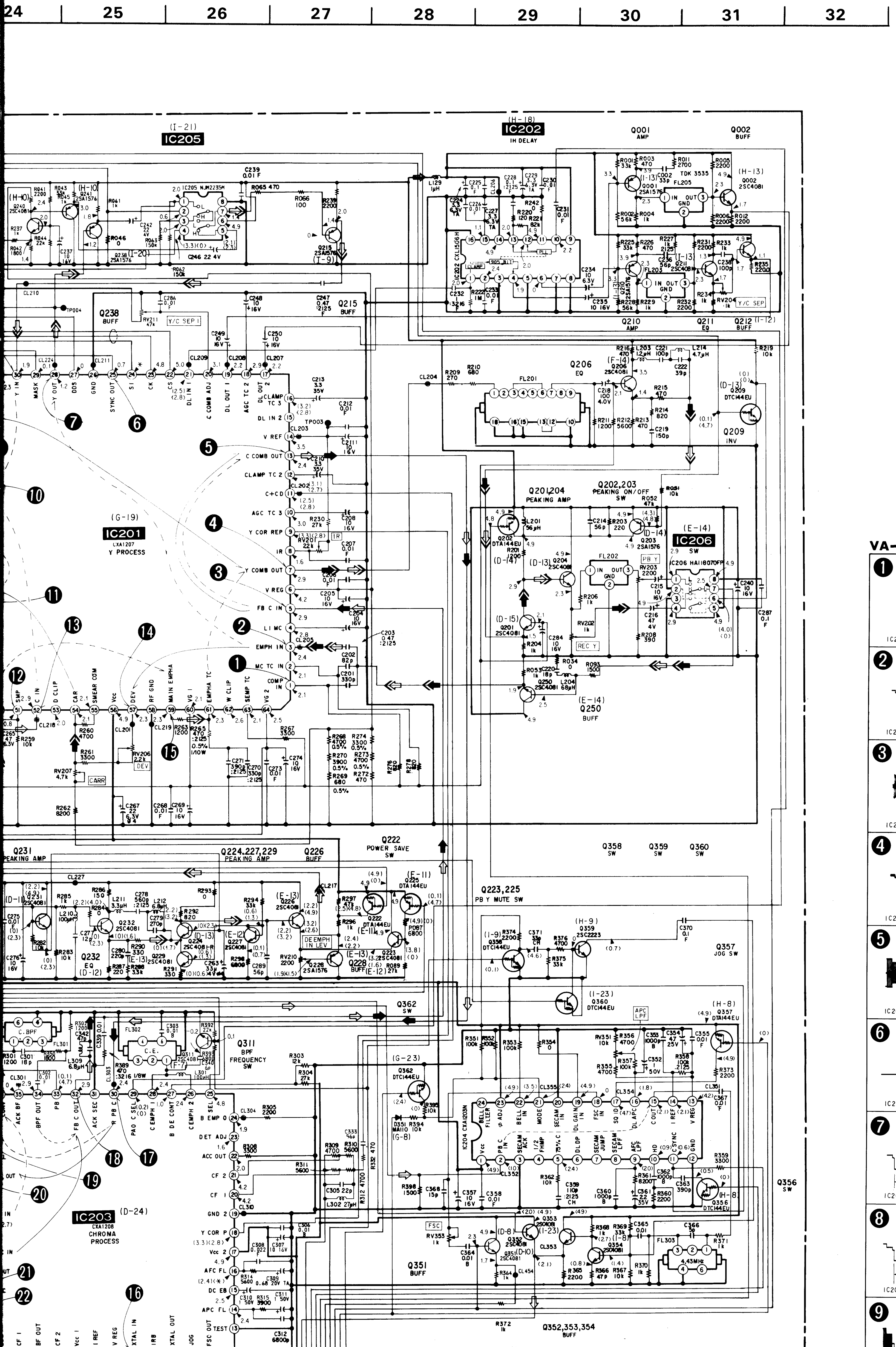


AUDIO
J201 (2/2)
S201 (1/2)
IN LINE OUT
Australian Model
AEP/UK Model
CL450
CL419
C400 1000p
R400 0
C402 1000p
C403 1000p
CN401 6P JTS
AUDIO 4.9V
MIC L IN
AUDIO GND
MIC R IN
MIC ST/MONO
HIFI/WIND
TO MC-76P BOARD W651
(See page 120.)
Q404 BUFF
R466 47k
R608 10k
(G-3)
R490 0
R483 0
R491 47k
R435 47k
C620 1000p
R434 18k
C441 0.47
R405 2200
IC400 CXA1488R
(C-5)
IC400
AFM PROCESS
CN601 9P JTS
K IN 6
K OUT 4
K OUT 3
SS GND
LANC DC
LANC
AUDIO GND
HEAD PHONE L
HEAD PHONE R
TO SW-174P BOARD CN901
(See page 120.)
CL423
CL424
Q400 JOG SW
RV401 10k
RV400 10k
L400 18μH
R602 6.8k
C427 6800p
R423 0
CL409 AP AUDIO GND
AV 4.43M
CL416 AH FADER CON
CL408 AQ AUDIO 4.9V
AY AUDIO L OU
CL431 AG SP CS
R606 0
AT PB AFM RF
BA HIFI/WIND
AZ AUDIO MIX
AK CAM/LINE
AL VA PB MOD
AR REC AFM R
CL415 BD SS GND
AA K IN 6
CL412 AM RF SW P
AO SP/LP
BH JOG
CL413 AC K OUT 4
CL414 AB K OUT 3
CL417 AD LANC DC
CL422 AE LANC


12
13
14
15
16
17
18
19
20
21
22
23
AEP/UK Model
Australian Model
(D-11)(E-2)
Q141,142 CURRENT LIMITER
VIDEO
RFU DC OUT
(B-2)
Q140
CN703 20P AMP
TO CT-38P BOARD CN705
(See page 85.)
CN506 20P
TO FU-100P BOARD W502
(See page 113.)
CN901 8P ZIF
TO FU-100P BOARD W901
(See page 113.)
W702 12P
TO VC-94P BOARD CN305
(See page 68.)
(J-4)
IC001
LANC I/O
Q171 (I-28) BUFF
(J-3) Q172 CHARACTER MIX 3.58MHz TRAP
Q060 MUTE
Q061 INV
Q062 INV
Q063 INV
Q107 FREQUENCY CHARACTER SW
Q251 (H-11)
Q251 SW
Q195 SW
Q196 SW
Q154 SW
(C-20)(C-21) Q191,192 AND GATE
(I-22) Q244 INV
SYNC AGC
Q101,102 PB 4.9V SW
Q105 BUFF
Q106, D101 SOFT LIMITER
Q109 BUFF
Q115 TRAP SW
Q121 REC 4.9V SW
Q122,123 EQ
Q116 GAIN SW
Q246 BUS SW
Q245,247 BUS SW
(F-10) Q243 SW
D215 (H-1) CHASSIS
(C-7) Q301 2SA1576 BUFF
(B-23) D214 DWA010
CN506 16P TO SS-136P BOARD CN506 (See page 105.)
CN507 20P TO SS-136P BOARD CN507 (See page 105.)
W701 4P TO VC-94P BOARD CN307 (See page 70.)
CN704 15P TO CT-38P BOARD W704 (See page 85.)


18
19
20
21
22
23
24
25
26
27
28
29
(I-21)
IC205
(H-18)
IC202
1H DELAY
Q171 (I-28) BUFF
Q172 CHARACTER MIX 3.58MHz TRAP
Q251 SW
Q060 MUTE
Q240,241 6dB AMP
Q244 INV
Q238 BUFF
Q215 BUFF
Q154 SW
Q061 INV
Q062 INV
Q063 INV
Q195 SW
Q196 SW
Q107 FREQUENCY CHARACTER SW
Q191,192 AND GATE
(G-19)
IC201
CXA1207
Y PROCESS
SYNC AGC
Y/C SEP
Q201,204 PEAKING AMP
Q105 BUFF
Q106, D101 SOFT LIMITER
Q109 BUFF
Q248 DO DET LEVEL SW
Q243 SW
Q115 TRAP SW
Q220,221 PB 4.9V SW
Q231 PEAKING AMP
Q224,227,229 PEAKING AMP
Q226 BUFF
Q222 POWER SAVE SW
Q223,225 PB Y MUTE SW
Q232 EQ
Q303 BUFF
Q311 BPF FREQUENCY SW
Q362 SW
Q122,123 EQ
116 GAIN SW
(D-24)
IC203
CXA1208
CHROMA PROCESS
Q301 BUFF
Q351 BUFF
Q352,353 BUFF
(H-24)
IC204
PAL JOG
TO VC-94P BOARD CN307
(See page 70.)
TO CT-38P BOARD W704
(See page 85.)

VIDEO/AUDIO VIDEO/AUDIO


24
25
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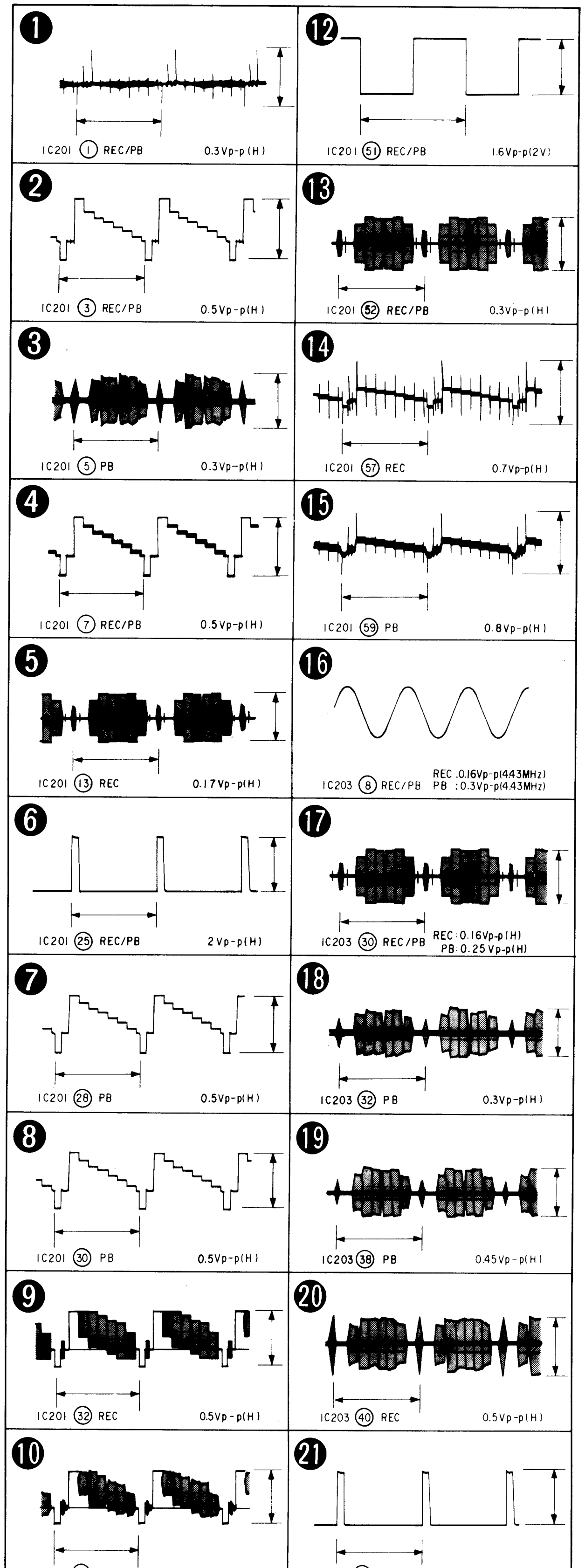
31
32
(I-21)
IC205
(H-18)
IC202
1H DELAY
Q001
AMP
Q002
BUFF
Q238
BUFF
Q215
BUFF
Q210
AMP
Q211
EQ
Q212
BUFF
Q206
EQ
Q209
INV
(G-19)
IC201
CXA1207
Y PROCESS
Q201,204
PEAKING AMP
Q202,203
PEAKING ON/OFF SW
(E-14)
IC206
Q250
BUFF
Q231
PEAKING AMP
Q224,227,229
PEAKING AMP
Q226
BUFF
Q222
POWER SAVE SW
Q358
SW
Q359
SW
Q360
SW
Q223,225
PB Y MUTE SW
Q357
JOG SW
Q232
EQ
Q362
SW
Q311
BPF FREQUENCY SW
Q356
SW
Q351
BUFF
Q352,353,354
BUFF
IC203
CXA1208
CHROMA PROCESS
(H-24)
IC204
PAL JOG
(D-24)
VA-67P BOARD

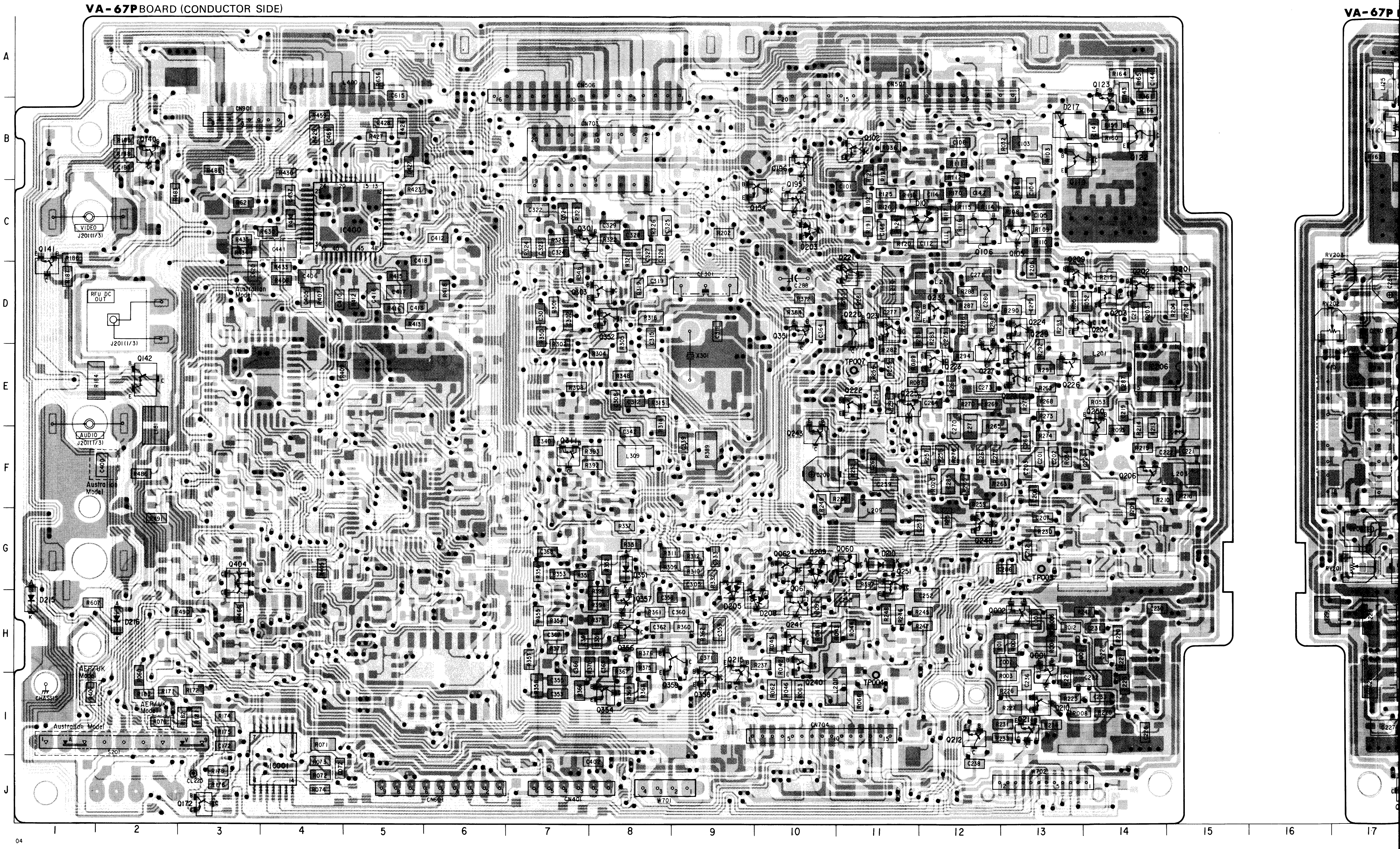
VA-67P BOARD


❶
IC201 ① REC/PB 0.3Vp-p(H)
⓬
IC201 (51) REC/PB 1.6Vp-p(2V)
❷
IC201 ③ REC/PB 0.5Vp-p(H)
⓭
IC201 (52) REC/PB 0.3Vp-p(H)
❸
IC201 ⑤ PB 0.3Vp-p(H)
⓮
IC201 (57) REC 0.7Vp-p(H)
❹
IC201 ⑦ REC/PB 0.5Vp-p(H)
⓯
IC201 (59) PB 0.8Vp-p(H)
❺
IC201 ⑬ REC 0.17Vp-p(H)
⓰
IC203 ⑧ REC/PB REC 0.16Vp-p(4.43MHz) PB 0.3Vp-p(4.43MHz)
❻
IC201 ㉕ REC/PB 2Vp-p(H)
⓱
IC203 ㉚ REC/PB REC 0.16Vp-p(H) PB 0.25Vp-p(H)
❼
IC201 ㉘ PB 0.5Vp-p(H)
⓲
IC203 ㉜ PB 0.3Vp-p(H)
❽
IC201 ㉚ PB 0.5Vp-p(H)
⓳
IC203 ㊳ PB 0.45Vp-p(H)
❾
IC201 ㉜ REC 0.5Vp-p(H)
⓴
IC203 ㊵ REC 0.5Vp-p(H)
❿
IC201 ㊳ PB 2Vp-p(H)
㉑
IC203 ㊻ REC/PB 2Vp-p(H)
⓫
IC201 ㊸ REC 0.2V/div 0.1μsec/div
㉒
IC203 ㊼ REC/PB 5Vp-p(2V)

VA-67P (VIDEO/AUDIO) PRINTED WIRING BOARD

—Ref. No. VA-67P BOARD : 2000 series—

VA-67P BOARD (CONDUCTOR SIDE)


VA-67P
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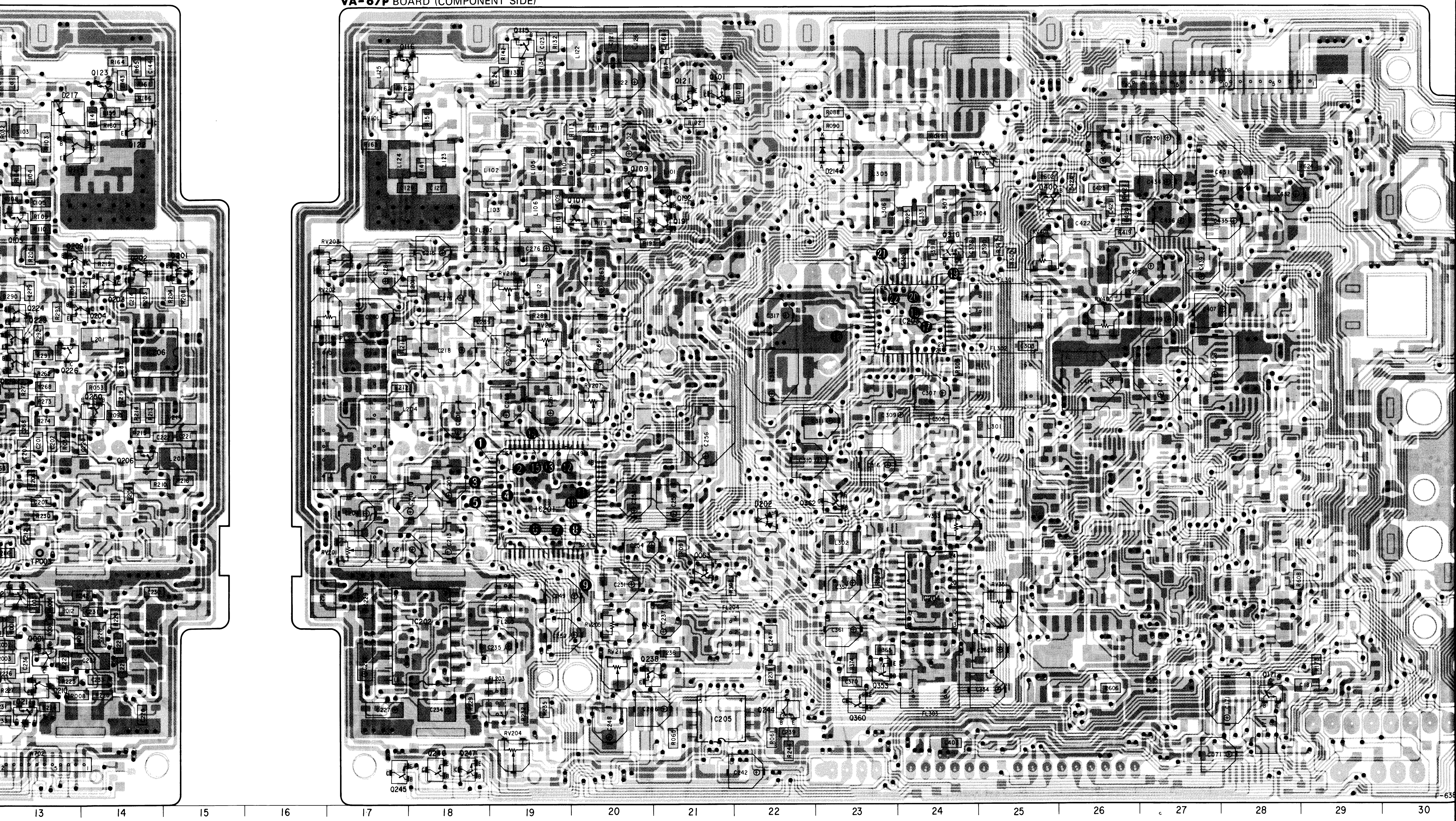
13
14
15
16
17
CN901
CN506
CN507
CN703
CN704
CN601
CN401
W701
W702
IC400
IC001
CF301
X301
L309
L209
L201
VIDEO
J201(1/3)
RFU DC OUT
J201(1/3)
AUDIO
J201(1/3)
Australian Model
AEP/UK Model
CHASSIS
S201
TP007
TP005
TP004
Q404
Q141
Q142
Q140
Q172
Q123
D215
D216
D217
04

VA-67P BOARD (COMPONENT SIDE)


IC201
IC202
IC203
IC204
IC205
CN508
TP001
13
14
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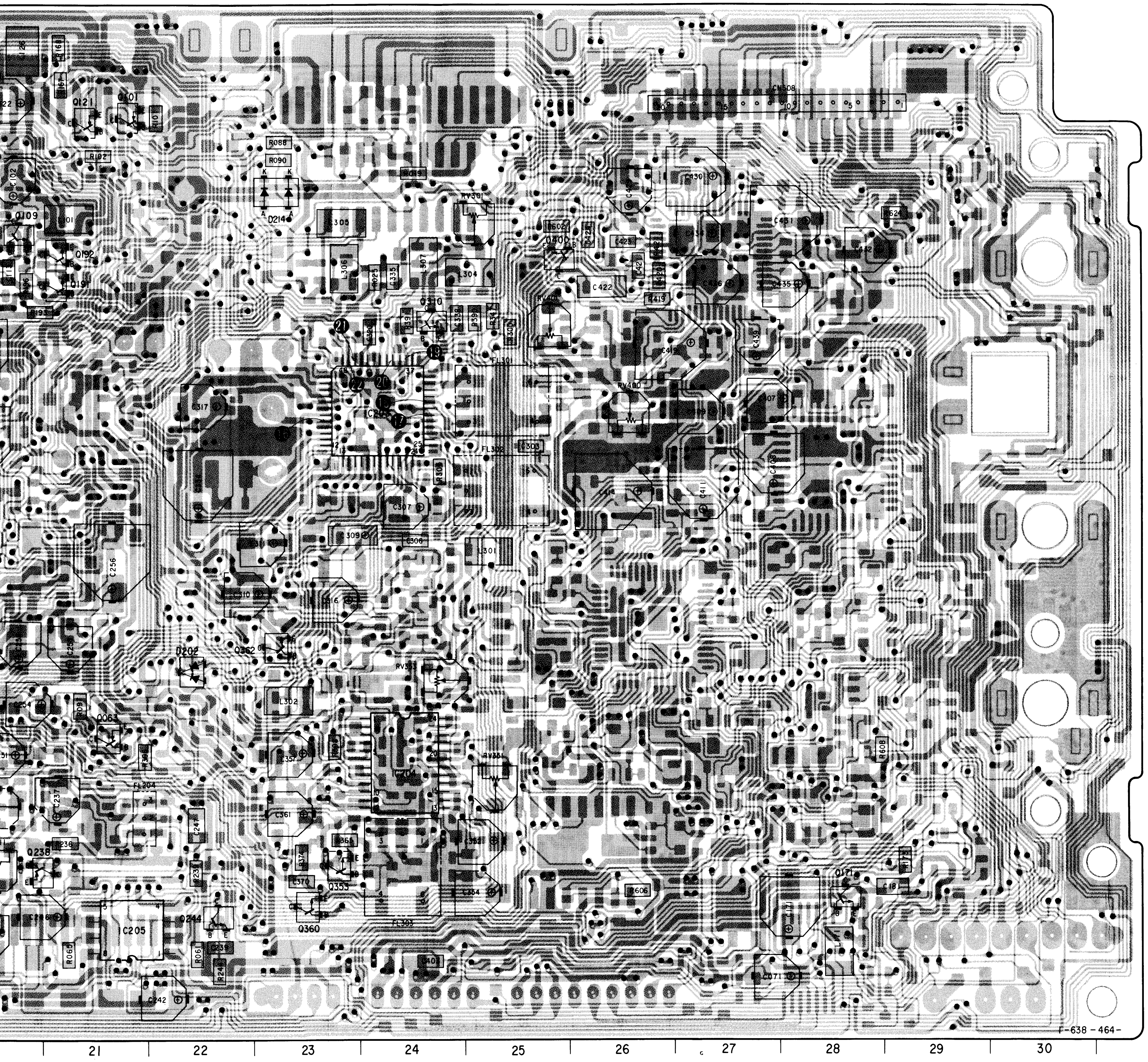


21

< DIODE >

D101	8-719-800-76	1SS226
D202	8-719-941-86	DAN202U
D203	8-719-941-86	DAN202U
D205	8-719-941-86	DAN202U
D208	8-719-941-86	DAN202U
D209	8-719-941-86	DAN202U
D210	8-719-404-46	MA110
D214	8-719-940-45	DWA010
D215	8-719-404-46	MA110
D216	8-719-404-46	MA110
D217	8-719-801-41	1SS196
D351	8-719-404-46	MA110

< IC >

IC001	8-759-999-02	TL1596CDSB
IC201	8-752-036-19	CXA1207R
IC202	8-752-333-24	CXL1506M
IC203	8-752-036-20	CXA1208R
IC204	8-759-605-61	CXA1203N
IC205	8-759-710-29	NJM2235M
IC206	8-759-320-76	HA118070FP
IC400	8-759-823-20	CXA-1488R

< TRANSISTOR >

Q001	8-729-905-23	2SA1576-R
Q002	8-729-905-35	2SC4081-R
Q060	8-729-905-18	DTC144EU
Q061	8-729-905-18	DTC144EU
Q062	8-729-905-18	DTC144EU
Q063	8-729-905-12	DTA144EU
Q101	8-729-905-23	2SA1576-R
Q102	8-729-905-18	DTC144EU
Q105	8-729-905-35	2SC4081-R
Q106	8-729-102-07	2SC2223-F13
Q107	8-729-905-12	DTA144EU
Q109	8-729-905-35	2SC4081-R
Q115	8-729-905-23	2SA1576-R
Q116	8-729-905-18	DTC144EU
Q119	8-729-102-07	2SC2223-F13
Q121	8-729-905-23	2SA1576-R
Q122	8-729-102-07	2SC2223-F13
Q123	8-729-905-35	2SC4081-R
Q140	8-729-905-12	DTA144EU
Q141	8-729-905-35	2SC4081-R
Q142	8-729-141-48	2SB624-BV345
Q154	8-729-905-35	2SC4081-R
Q171	8-729-905-35	2SC4081-R
Q172	8-729-905-35	2SC4081-R
Q191	8-729-905-35	2SC4081-R
Q192	8-729-905-18	DTC144EU
Q195	8-729-905-12	DTA144EU
Q196	8-729-905-18	DTC144EU
Q201	8-729-905-35	2SC4081-R
Q202	8-729-905-12	DTA144EU
Q203	8-729-905-23	2SA1576-R
Q204	8-729-905-35	2SC4081-R
Q206	8-729-905-35	2SC4081-R
Q209	8-729-905-18	DTC144EU
Q210	8-729-905-23	2SA1576-R
Q211	8-729-905-35	2SC4081-R
Q212	8-729-905-35	2SC4081-R
Q215	8-729-905-23	2SA1576-R
Q220	8-729-141-48	2SB624-BV345
Q221	8-729-905-18	DTC144EU
Q222	8-729-905-12	DTA144EU
Q223	8-729-905-35	2SC4081-R
Q224	8-729-905-35	2SC4081-R
Q225	8-729-905-12	DTA144EU
Q226	8-729-905-35	2SC4081-R
Q227	8-729-905-35	2SC4081-R
Q228	8-729-905-23	2SA1576-R
Q229	8-729-905-35	2SC4081-R
Q231	8-729-905-35	2SC4081-R
Q232	8-729-905-35	2SC4081-R
Q238	8-729-905-23	2SA1576-R
Q240	8-729-905-35	2SC4081-R
Q241	8-729-905-23	2SA1576-R
Q243	8-729-905-18	DTC144EU
Q244	8-729-905-18	DTC144EU
Q245	8-729-905-XX	DTC114TUT106
Q246	8-729-905-XX	DTC114TUT106
Q247	8-729-905-XX	DTC114TUT106
Q248	8-729-905-18	DTC144EU
Q250	8-729-905-35	2SC4081-R
Q251	8-729-905-18	DTC144EU
Q301	8-729-905-23	2SA1576-R
Q303	8-729-905-35	2SC4081-R
Q310	8-729-905-35	2SC4081-R
Q311	8-729-905-35	2SC4081-R
Q351	8-729-905-35	2SC4081-R
Q352	8-729-905-35	2SC4081-R
Q353	8-729-905-35	2SC4081-R
Q354	8-729-905-35	2SC4081-R
Q356	8-729-905-18	DTC144EU
Q357	8-729-905-12	DTA144EU
Q358	8-729-905-18	DTC144EU
Q359	8-729-102-08	2SC2223-F14
Q360	8-729-905-18	DTC144EU
Q362	8-729-905-18	DTC144EU
Q400	8-729-905-18	DTC144EU
Q404	8-729-904-07	FMG2

CC-61P (RELAY), SS-136P (SERVO/SYSTEM CONTROL),FP-89, FP-90 (MECHADECK FLEXIBLE) PRINTED WIRING BOARDS

—Ref. No. CC-61P and SS-136P BOARDS : 3000 series, FP-89 and FP-90 BOARDS : 8000 series—

< DIODE >

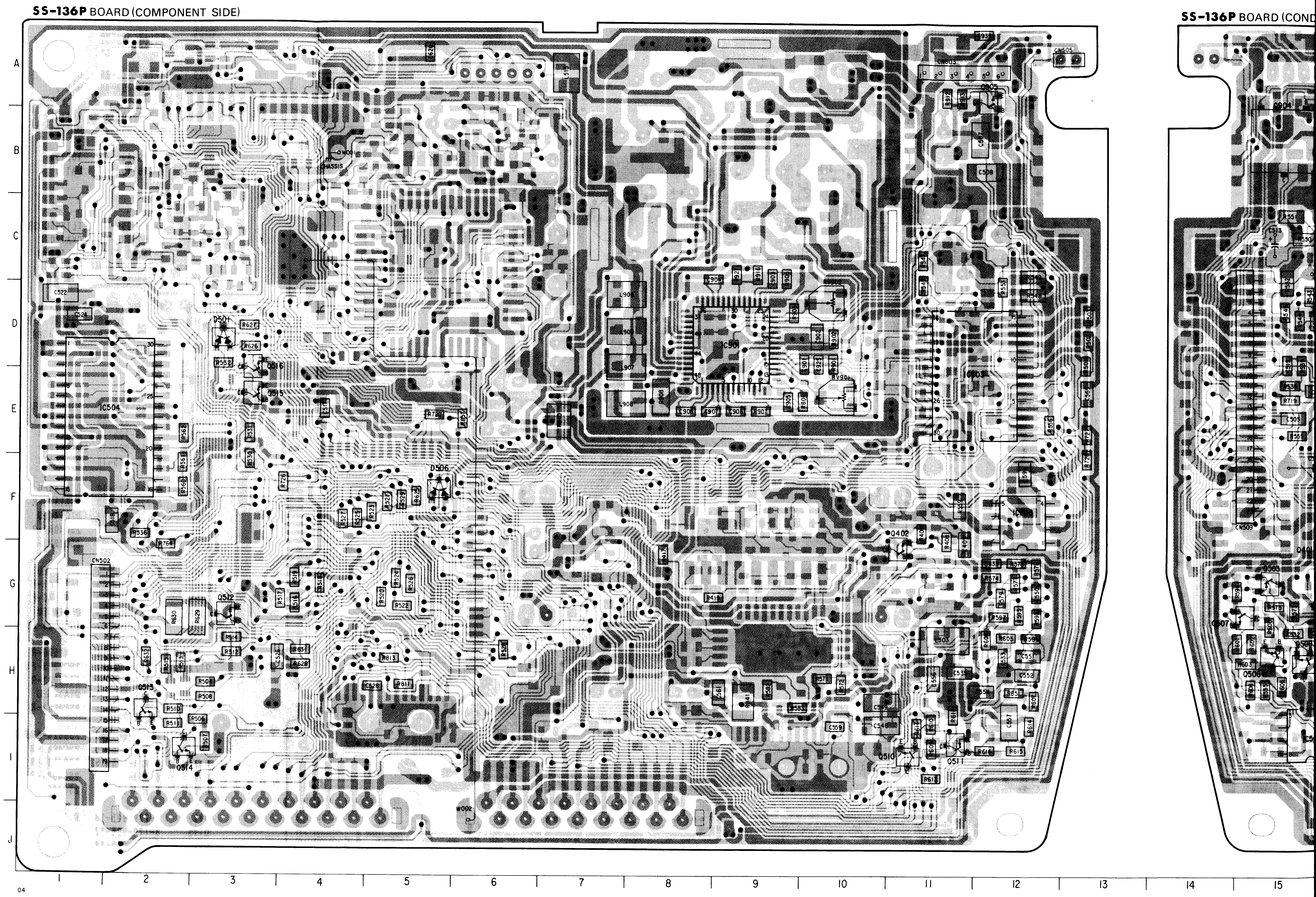
D501	8-719-941-86	DAN202U
D506	8-719-941-86	DAN202U
D510	8-719-404-46	MA110
D901	8-719-938-75	SB05-05CP
D902	8-719-938-75	SB05-05CP
D903	8-719-938-78	SB10-05PCP

< IC >

IC501	8-752-818-70	CXP80116-830Q
IC502	8-759-148-05	CXA8010M
IC503	8-759-990-55	CXA8006M
IC504	8-759-805-06	CXA1127M
IC506	8-752-035-48	CXA1204Q
IC507	8-759-998-92	LM393D
IC508	8-759-748-65	BR93CS46F
IC901	8-759-500-42	MB3783PFV

< TRANSISTOR >

Q400	8-729-905-35	2SC4081-R
Q401	8-729-905-35	2SC4081-R
Q402	8-729-905-35	2SC4081-R
Q502	8-729-905-35	2SC4081-R
Q503	8-729-905-24	2SA1576-S
Q505	8-729-905-35	2SC4081-R
Q506	8-729-905-24	2SA1576-S
Q507	8-729-905-35	2SC4081-R
Q508	8-729-905-24	2SA1576-S
Q509	8-729-905-35	2SC4081-R
Q510	8-729-905-35	2SC4081-R
Q511	8-729-905-24	2SA1576-S
Q512	8-729-907-00	DTC114EU
Q513	8-729-905-35	2SC4081-R
Q514	8-729-905-35	2SC4081-R
Q515	8-729-905-18	DTC144EU
Q516	8-729-905-18	DTC144EU
Q540	8-729-822-48	FC101
Q901	8-729-805-25	2SB1121
Q902	8-729-805-25	2SB1121
Q903	8-729-805-25	2SB1121
Q904	8-729-820-47	2SB1202FAT
Q905	8-729-905-35	2SC4081-R


SS-136P BOARD (COMPONENT SIDE)
SS-136P BOARD (COND
A
B
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I
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1
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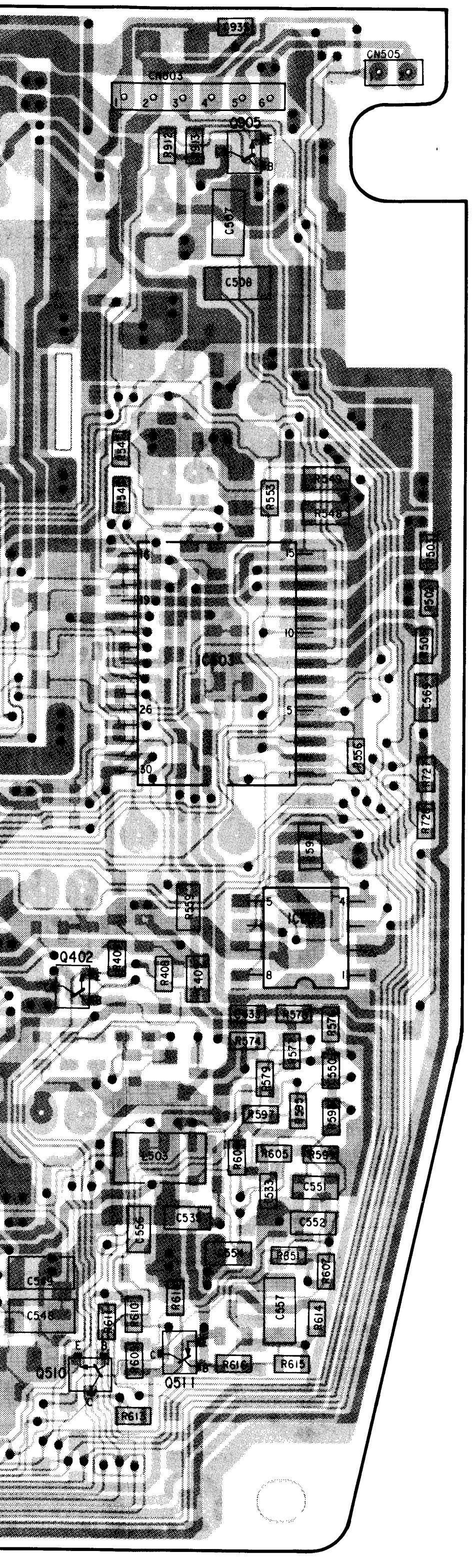
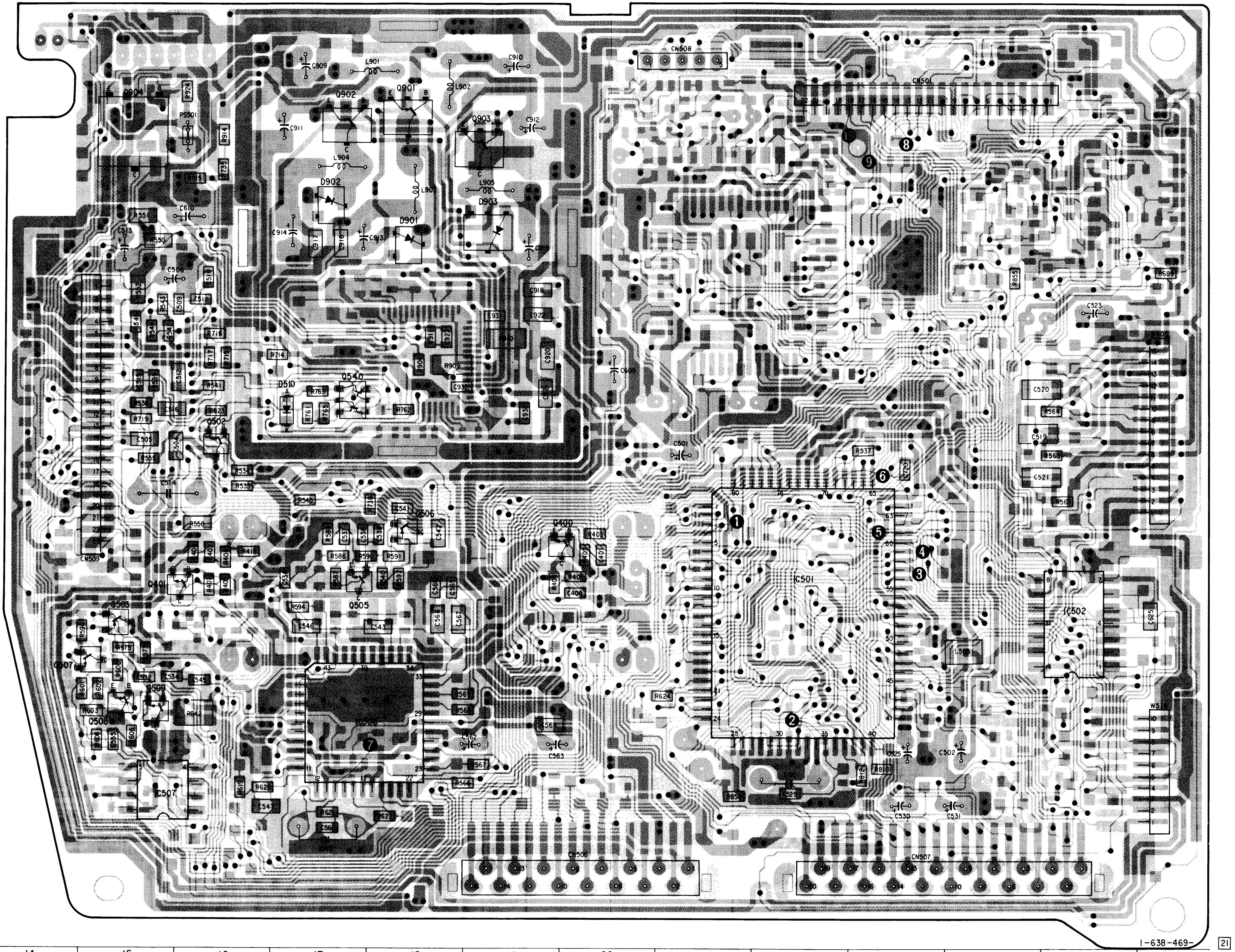
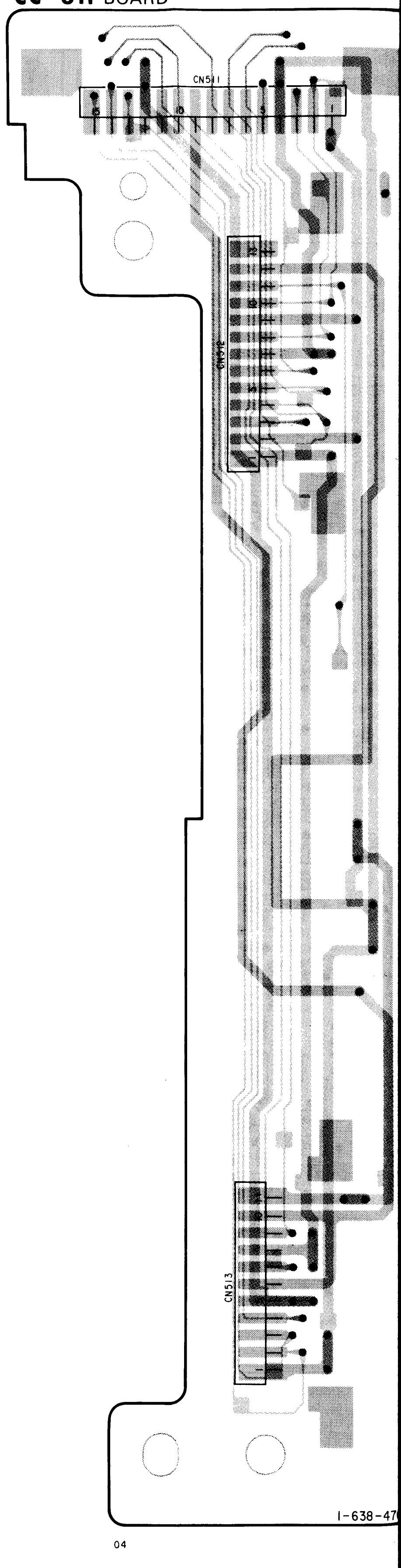
13
14
15
04
IC504
IC501
IC503
CN502
CN503
CN505
CN509
D501
D506
Q512
Q513
Q514
Q515
Q516
Q402
Q510
Q511
Q905
Q904
W001
W002
CHASSIS
C522
C524
L519
L906
L907
L908
RV901


CN505
CN503
Q905
IC503
Q402
Q510
Q511

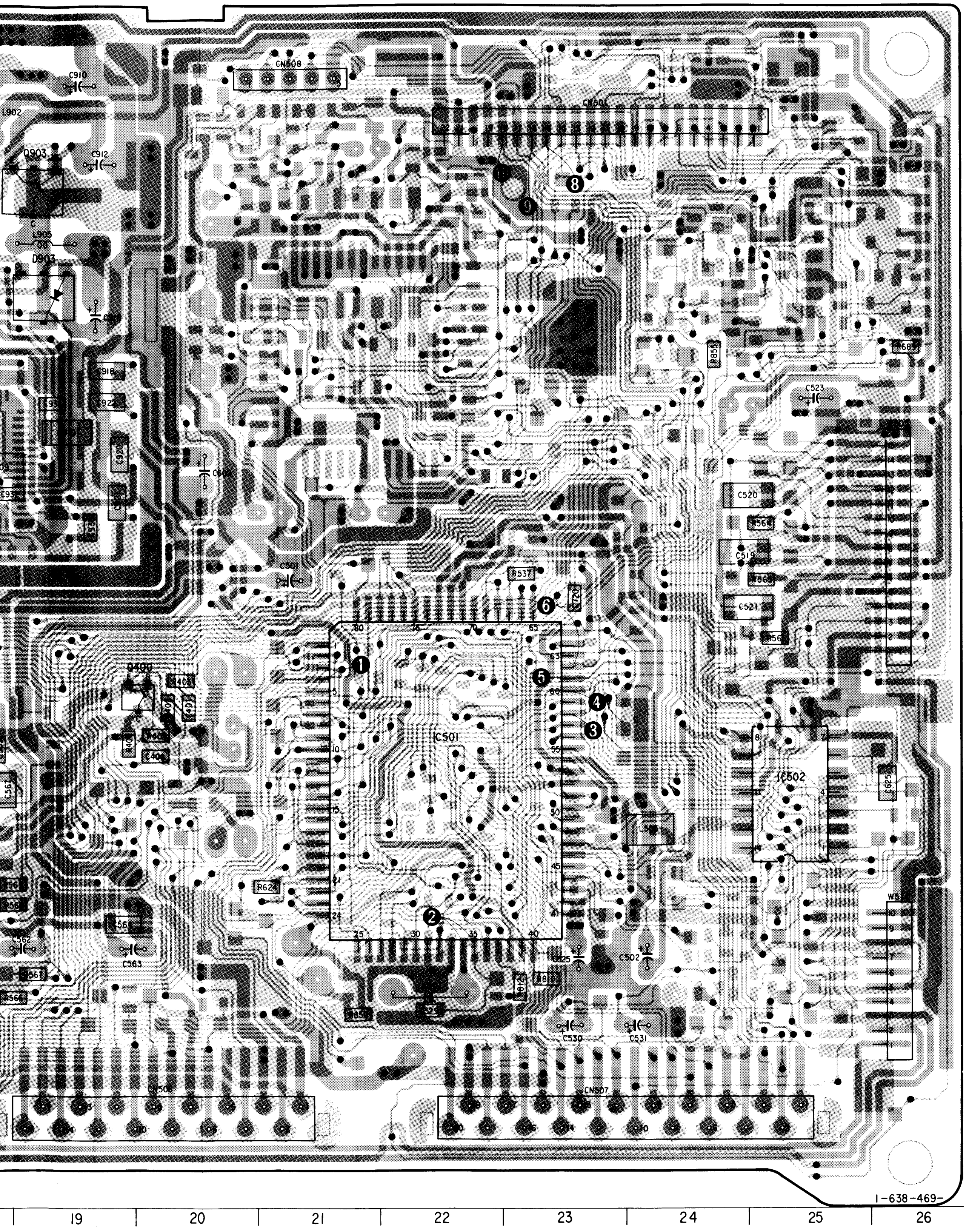
SS-136P BOARD (CONDUCTOR SIDE)


CN508
CN501
Q904
Q902
Q901
Q903
L901
L902
L904
L905
D902
D901
D903
C909
C910
C911
C912
C914
Q540
D510
Q502
Q506
Q505
Q401
Q503
Q507
Q508
Q400
CN509
IC501
IC502
IC507
C501
C520
C519
C521
C523
C502
CN506
CN507
R537
R624
W51
1-638-469-
21

CC-61P BOARD


CN511
CN512
CN513
1-638-47
04

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26


CN508
C910
L902
C912
Q903
L905
D903
C918
C922
C920
C609
C520
C519
C521
C523
R855
R689
C501
R537
IC501
IC502
Q400
R624
C563
C502
C530
C531
CN506
CN507
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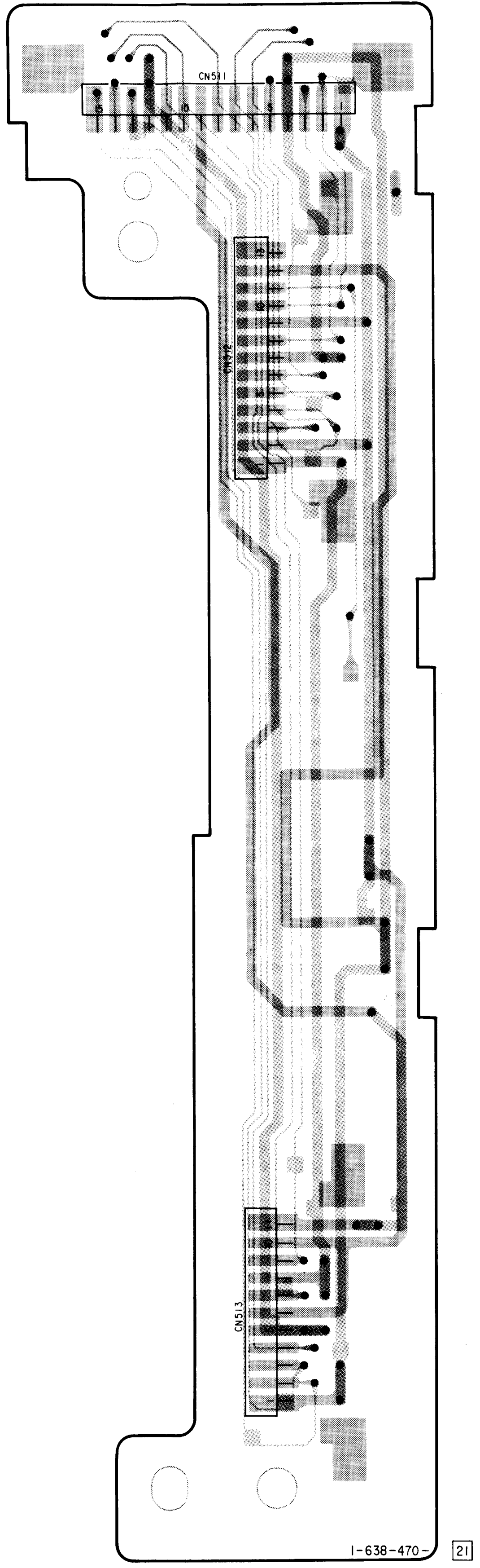
CC-61P BOARD


CN511
CN512
CN513
1-638-470-
21
04

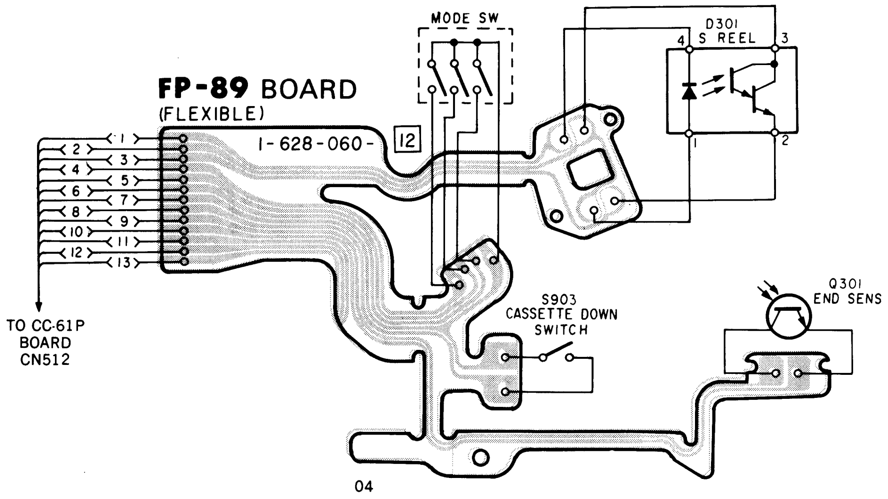
< PHOTO COUPLER >

D301 8-719-820-44 TLP-907-0

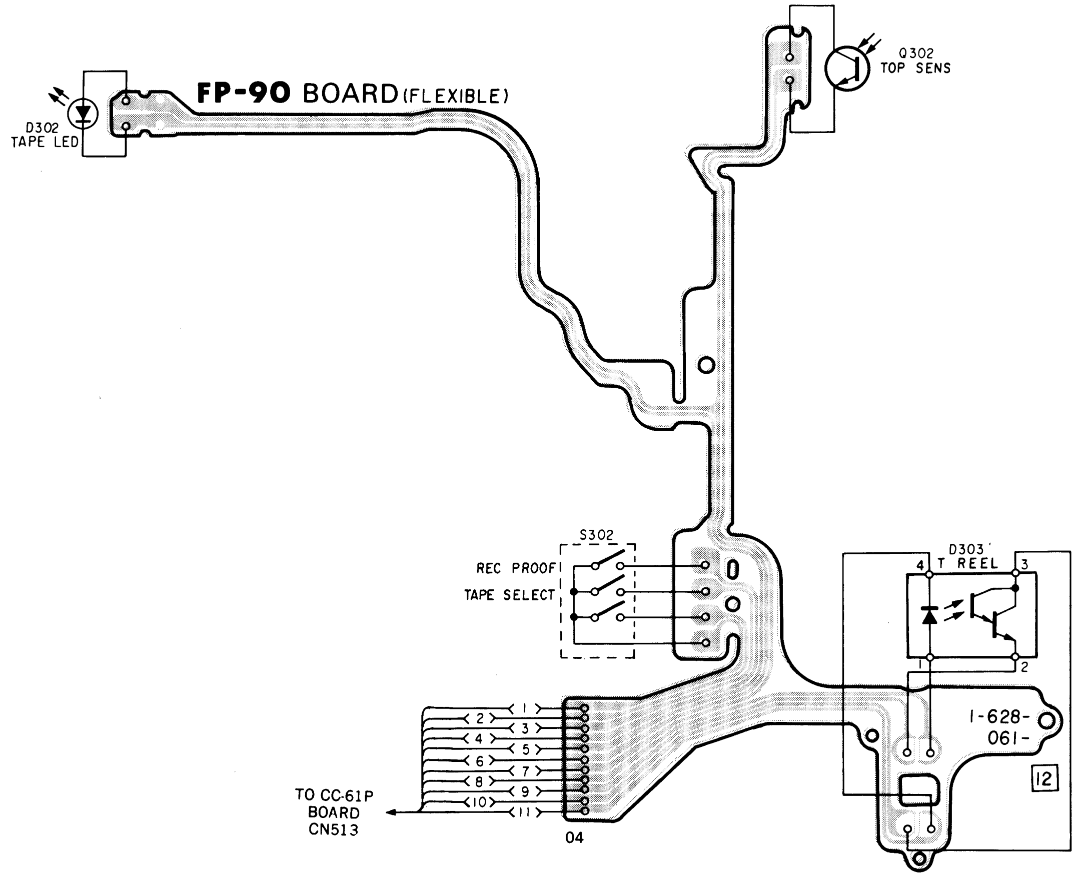
< PHOTO SENSOR >

Q301 8-729-906-48 EE-TP109

FP-89 BOARD (FLEXIBLE)


MODE SW
D301
S REEL
4
3
1
2
1-628-060-
12
1
2
3
4
5
6
7
8
9
10
11
12
13
TO CC-61P BOARD CN512
S903
CASSETTE DOWN SWITCH
Q301
END SENS
04

FP-90 BOARD (FLEXIBLE)


D302
TAPE LED
Q302
TOP SENS
S302
REC PROOF
TAPE SELECT
D303
T REEL
4
3
2
1-628-061-
12
1
2
3
4
5
6
7
8
9
10
11
TO CC-61P BOARD CN513
04

< DIODE >

D302 8-719-940-81 GL452S

< PHOTO COUPLER >

D303 8-719-820-44 TLP-907-0

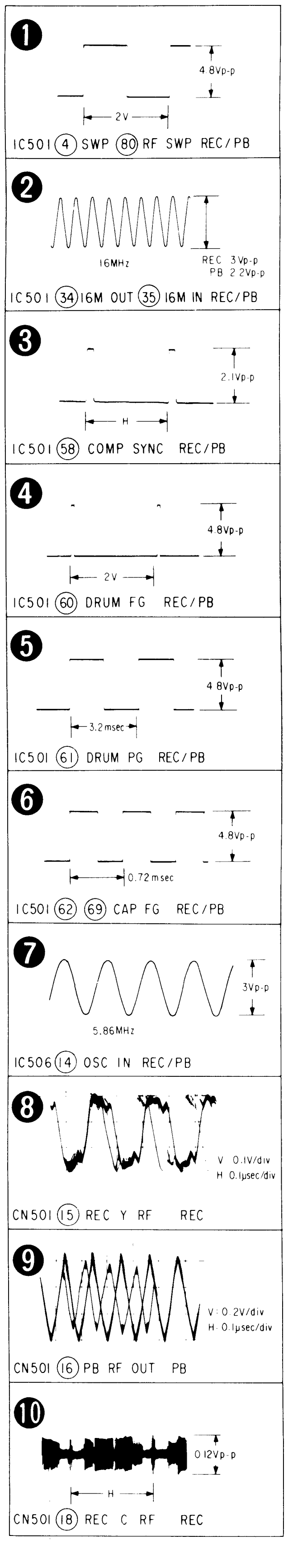
< PHOTO SENSOR >

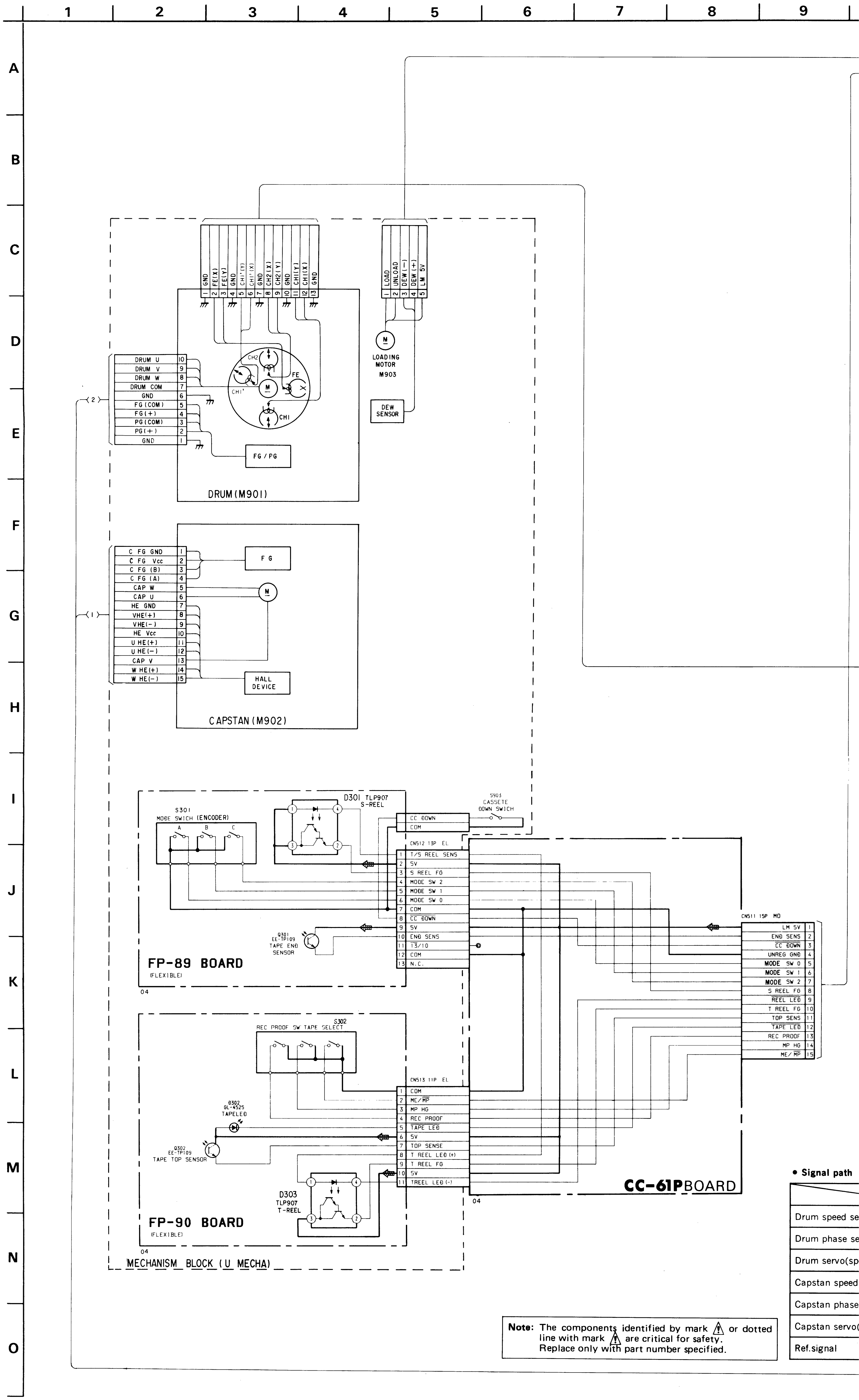
Q302 8-729-906-48 EE-TP109

CC-61P (RELAY), SS-136P (SERVO/SYSTEM CONTROL),FP-89, FP-90 (MECHADECK FLEXIBLE) SCHEMATIC DIAGRAM

—Ref. No. CC-61P and SS-136P BOARDS : 3000 series, FP-89 and FP-90 BOARDS : 8000 series—

SS-136P BOARD




1
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C
D
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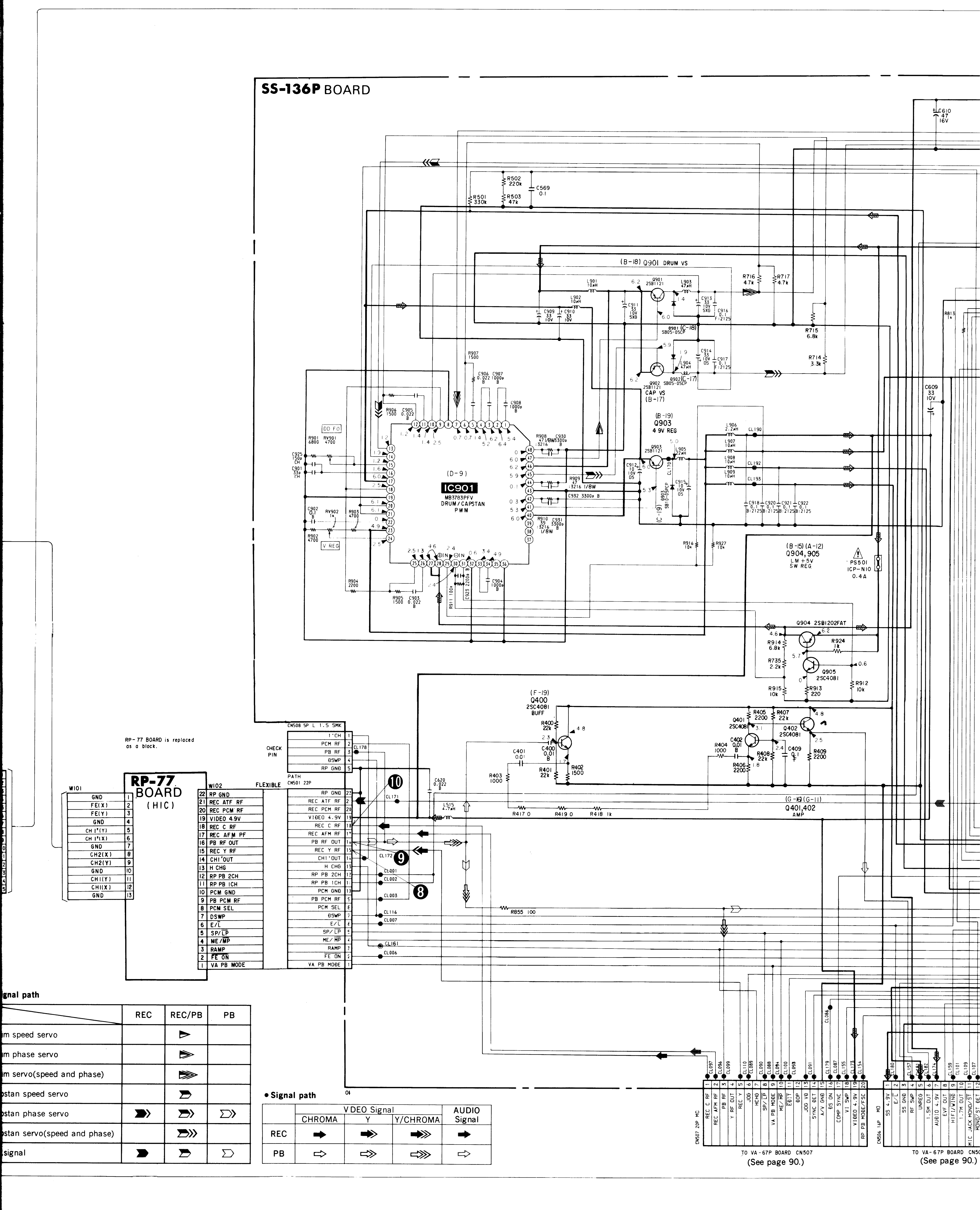
F
G
H
I
J
K
L
M
N
O
1 GND
2 FE(X)
3 FE(Y)
4 GND
5 CH1'(Y)
6 CH1'(X)
7 GND
8 CH2(X)
9 CH2(Y)
10 GND
11 CH1(Y)
12 CH1(X)
13 GND
1 LOAD
2 UNLOAD
3 DEW(−)
4 DEW(+)
5 LM 5V
LOADING MOTOR M903
DEW SENSOR
DRUM U 10
DRUM V 9
DRUM W 8
DRUM COM 7
GND 6
FG(COM) 5
FG(+) 4
PG(COM) 3
PG(+) 2
GND 1
CH2
CH1'
FE
CH1
FG/PG
DRUM(M901)
(2)
(1)
C FG GND 1
C FG Vcc 2
C FG (B) 3
C FG (A) 4
CAP W 5
CAP U 6
HE GND 7
VHE(+) 8
VHE(−) 9
HE Vcc 10
U HE(+) 11
U HE(−) 12
CAP V 13
W HE(+) 14
W HE(−) 15
F G
HALL DEVICE
CAPSTAN(M902)
S301
MODE SWICH (ENCODER)
A
B
C
D301 TLP907
S-REEL
S903
CASSETE
DOWN SWICH
CC DOWN
COM
CN512 13P EL
1 T/S REEL SENS
2 5V
3 S REEL FG
4 MODE SW 2
5 MODE SW 1
6 MODE SW 0
7 COM
8 CC DOWN
9 5V
10 END SENS
11 13/10
12 COM
13 N.C.
Q301
EE-TP109
TAPE END SENSOR
FP-89 BOARD
(FLEXIBLE)
04
S302
REC PROOF SW TAPE SELECT
CN513 11P EL
1 COM
2 ME/MP
3 MP HG
4 REC PROOF
5 TAPE LED
6 5V
7 TOP SENSE
8 T REEL LED (+)
9 T REEL FG
10 5V
11 TREEL LED (−)
D302
GL-4525
TAPELED
Q302
EE-TP109
TAPE TOP SENSOR
D303
TLP907
T-REEL
FP-90 BOARD
(FLEXIBLE)
04
MECHANISM BLOCK (U MECHA)
04
CN511 15P MO
LM 5V 1
END SENS 2
CC DOWN 3
UNREG GND 4
MODE SW 0 5
MODE SW 1 6
MODE SW 2 7
S REEL FG 8
REEL LED 9
T REEL FG 10
TOP SENS 11
TAPE LED 12
REC PROOF 13
MP HG 14
ME/MP 15
CC-61PBOARD

• Signal path

Drum speed se
Drum phase se
Drum servo(sp
Capstan speed
Capstan phase
Capstan servo(
Ref.signal

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

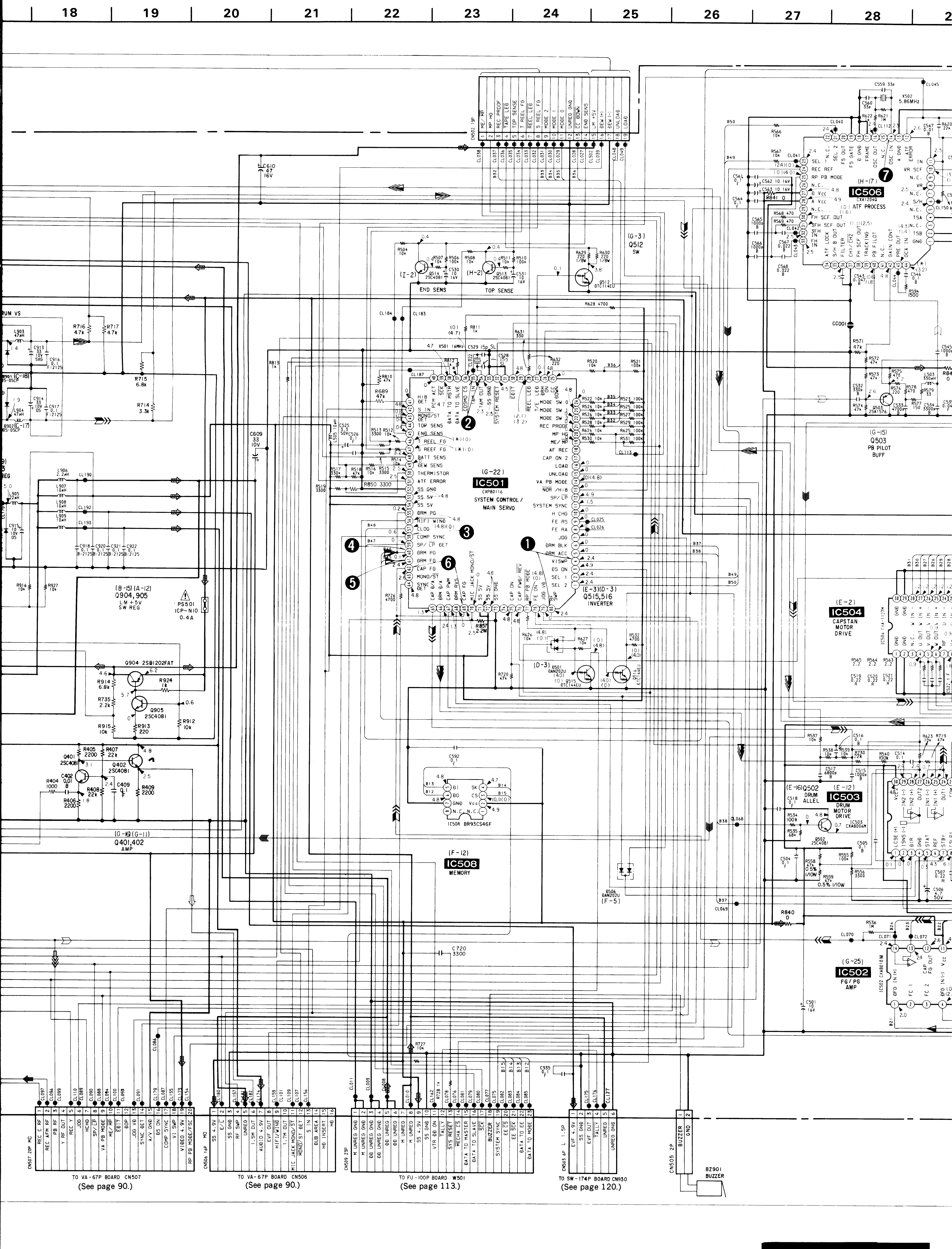

SS-136P BOARD
RP-77 BOARD (HIC)
RP-77 BOARD is replaced as a block.
W101
GND
FE(X)
FE(Y)
CH 1'(Y)
CH 1'(X)
CH2(X)
CH2(Y)
CH1(Y)
CH1(X)
W102
RP GND
REC ATF RF
REC PCM RF
VIDEO 4.9V
REC C RF
REC AFM PF
PB RF OUT
REC Y RF
CH1'OUT
H CHG
RP PB 2CH
RP PB 1CH
PCM GND
PB PCM RF
PCM SEL
DSWP
E/L
SP/LP
ME/MP
RAMP
FE ON
VA PB MODE
FLEXIBLE
CHECK PIN
CN508 5P L 1.5 SMK
1'CH
PCM RF
PB RF
DSWP
RP GND
PATH CN501 22P
(D-9)
IC901
MB3783PFV
DRUM/CAPSTAN PWM
(B-18) Q901 DRUM VS
Q901 2SB1121
Q902 2SB1121 CAP VS (B-17)
(B-19) Q903 4.9V REG
Q903 2SB1121
D901 SB05-05CP (C-18)
D902 SB05-05CP (C-17)
D903 SB05-05CP (C-19)
(B-15) (A-12) Q904,905 LM +5V SW REG
Q904 2SB1202FAT
Q905 2SC4081
PS501 ICP-N10 0.4A
(F-19) Q400 2SC4081 BUFF
Q401 2SC4081
Q402 2SC4081
(G-18) (G-11) Q401,402 AMP
DD FO
V REG
R501 330k
R502 220k
R503 47k
C569 0.1
R716 4.7k
R717 4.7k
R715 6.8k
R714 3.3k
C610 47 16V
C609 33 10V
R813 1k
R855 100
R417 0
R419 0
R418 1k
L515 4.7μH
C620 0.022 B
CN507 20P MC
REC C RF
REC AFM RF
PB RF
Y RF OUT
REC Y
JOG
HCHG
SP/LP
VA PB MODE
ME/MP
EDIT
DDP
JOG VD
SYNC DET
A/V GND
DS ON
COMP SYNC
V1 SWP
VIDEO 4.9V
RP PB MODE/FSC
CN504 16P MD
SS 4.9V
E/L
SS GND
RF SWP
UNREG
AUDIO 4.9V
EVF OUT
HIFI/WING
1.5H OUT
1.7H OUT
MIC JACK MONO/ST
TO VA-67P BOARD CN507
(See page 90.)
TO VA-67P BOARD CN50
(See page 90.)
8
9
10

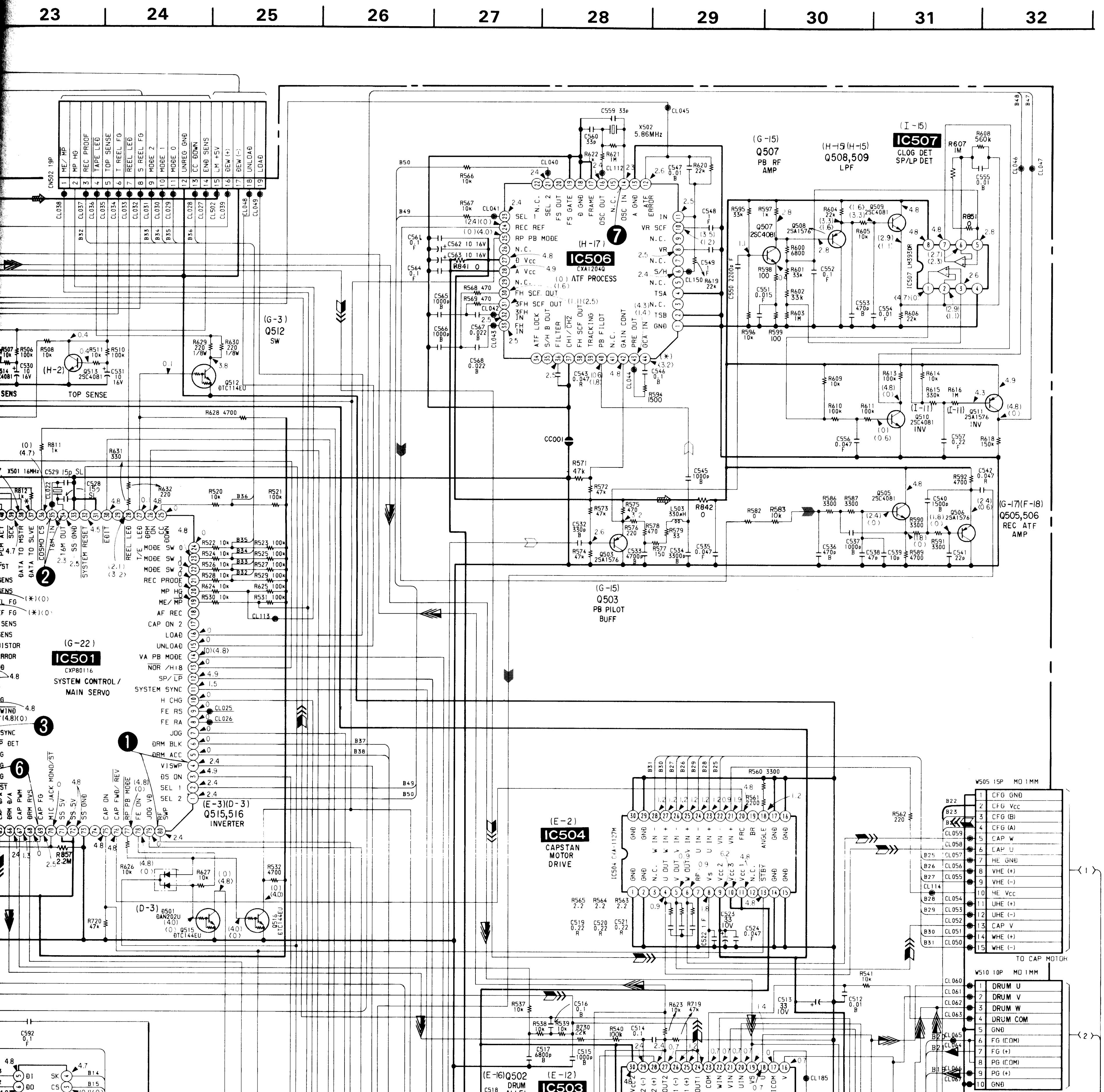
gnal path

	REC	REC/PB	PB
m speed servo		▻	
m phase servo		▷	
m servo(speed and phase)		⇛	
stan speed servo		▶	
stan phase servo	➤	➤	▷
stan servo(speed and phase)		▶	
signal	➤	▶	▷

• Signal path

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	➡
PB	⇨	⇨	⇨	⇨

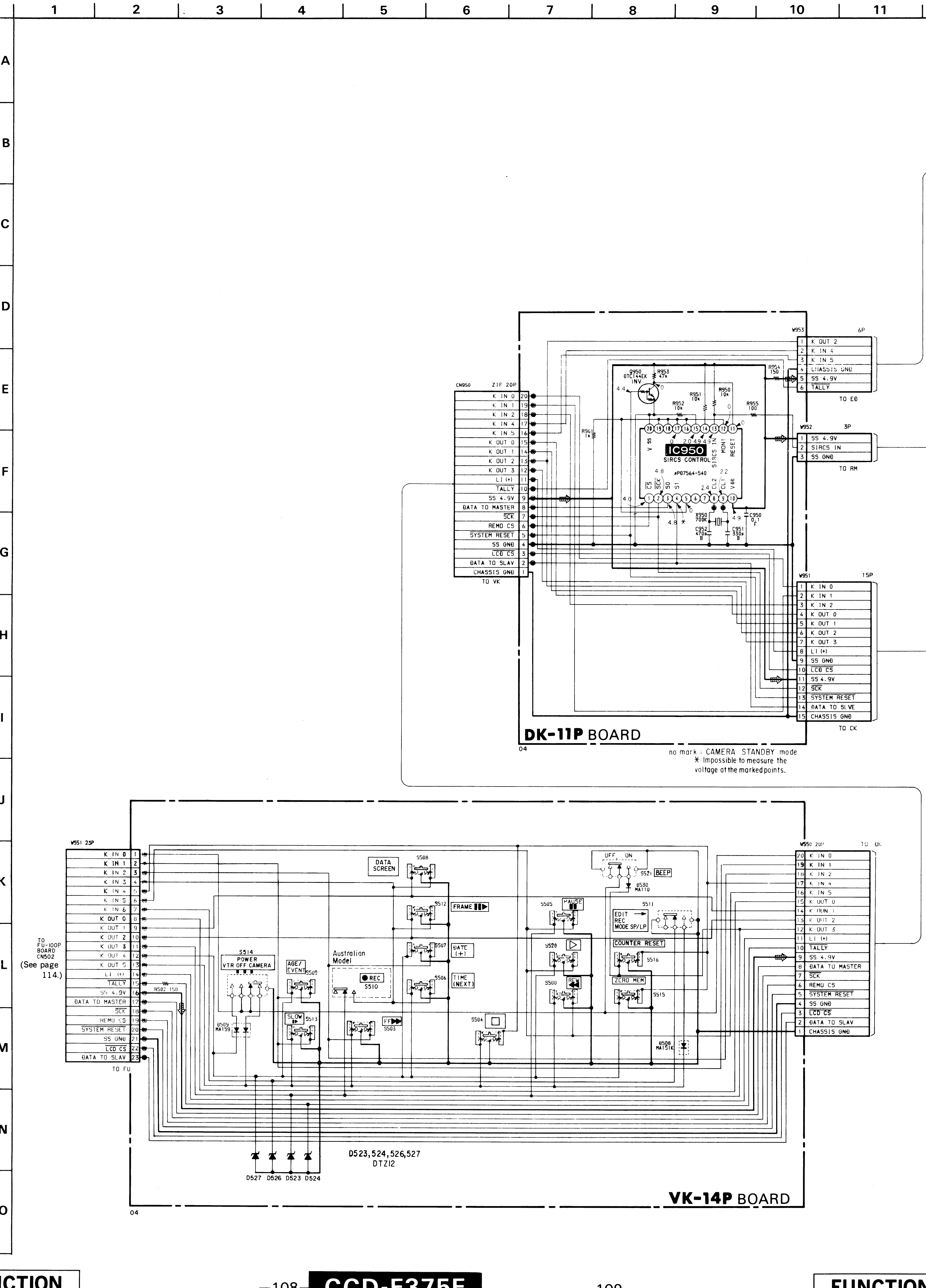

18
19
20
21
22
23
24
25
26
27
28
CN502 19P
ME/MP
MP HG
REC PROOF
TAPE LED
TOP SENSE
T REEL FG
S REEL FG
MODE 2
MODE 0
MODE 0
UNREG GND
CC DOWN
END SENS
LM +5V
DEW (+)
DEW (-)
UNLOAD
LOAD
(I-2) Q514 2SC4081
END SENS
(H-2) Q513 2SC4081
TOP SENSE
(G-3) Q512 SW
Q512 DTC114EU
(G-22)
IC501
CXP80116
SYSTEM CONTROL / MAIN SERVO
(B-15)(A-12)
Q904,905
LM +5V SW REG
PS501 ICP-N10 0.4A
Q904 2SB1202FAT
Q905 2SC4081
Q401 2SC4081
Q402 2SC4081
(G-19)(G-11)
Q401,402
AMP
(E-3)(D-3)
Q515,516
INVERTER
(D-3) D501 DAN202U
Q515 DTC144EU
Q516 DTC144EU
IC508 BR93CS46F
(F-12)
IC508
MEMORY
D506 DAN202U (F-5)
(H-17)
IC506
CXA1204Q
ATF PROCESS
X502 5.86MHz
(G-15)
Q503
PB PILOT BUFF
Q503 2SA1576
(E-2)
IC504
CAPSTAN MOTOR DRIVE
(E-16) Q502
DRUM ALLEL
(E-12)
IC503
DRUM MOTOR DRIVE
IC503 CXA8006M
Q502 2SC4081
(G-25)
IC502
FG/PG AMP
IC502 CXA8010M
CN507 20P MC
REC C RF
REC AFM RF
PB RF
Y RF OUT
REC Y
JOG
HCHG
SP/LP
VA PB MODE
ME/MP
EDIT
DOP
JOG VD
SYNC DET
A/V GND
DS ON
COMP SYNC
V1 SWP
VIDEO 4.9V
RP PB MODE/FSC
TO VA-67P BOARD CN507
(See page 90.)
CN506 16P MD
SS 4.9V
E/L
RF SWP
UNREG
1.5M OUT
AUDIO 4.9V
EVF OUT
HIFI/WIND
1.7M OUT
MIC JACK MONO/ST
MONO/ST DET
S IN
DUB AREA
HD INSERT
TO VA-67P BOARD CN506
(See page 90.)
CN509 23P
M UNREG GND
M UNREG GND
DD UNREG GND
DD UNREG GND
DD UNREG
M UNREG
M UNREG
SS 4.9V
SS GND
VTR DD ON
TALLY
SYS RESET
MECHA CS
DATA TO MASTER
SCK
BUZZER
SYSTEM SYNC
EE CS
EE SCK
DATA TO SLAVE
DATA TO MODE
TO FU-100P BOARD W501
(See page 113.)
CN503 6P L 1.5P
EVF 4.9V
SS GND
EVF OUT
TALLY
UNREG
UNREG GND
TO SW-174P BOARD CN930
(See page 120.)
CN505 2P
BUZZER
GND
BZ901 BUZZER


23
24
25
26
27
28
29
30
31
32
CN502 19P
ME/MP
MP HG
REC PROOF
TAPE LED
TOP SENSE
T REEL FG
T REEL LED
S REEL FG
MODE 2
MODE 1
MODE 0
UNREG GND
CC DOWN
END SENS
LM +5V
BEW (+)
BEW (-)
UNLOAD
LOAD
(H-17)
IC506
CXA1204Q
ATF PROCESS
X502
5.86MHz
(G-15)
Q507
PB RF AMP
(H-15)(H-15)
Q508,509
LPF
(I-15)
IC507
CLOG DET
SP/LP DET
(G-3)
Q512
SW
TOP SENSE
(G-17)(F-18)
Q505,506
REC ATF AMP
(G-15)
Q503
PB PILOT BUFF
(G-22)
IC501
CXP80116
SYSTEM CONTROL / MAIN SERVO
(E-3)(D-3)
Q515,516
INVERTER
(E-2)
IC504
CAPSTAN MOTOR DRIVE
W505 15P MO1MM
CFG GND
CFG Vcc
CFG (B)
CFG (A)
CAP W
CAP U
HE GND
VHE (+)
VHE (-)
HE Vcc
UHE (+)
UHE (-)
CAP V
WHE (+)
WHE (-)
TO CAP MOTOR
W510 10P MO1MM
DRUM U
DRUM V
DRUM W
DRUM COM
GND
FG (COM)
FG (+)
PG (COM)
PG (+)
GND
TO DRUM MOTOR
(E-16)Q502
DRUM ALLEL
(E-12)
IC503
DRUM MOTOR DRIVE
CXA8006M
IC508 BR93C46F
(F-12)
IC508
MEMORY
D506
DAN202U
(F-5)
(G-25)
IC502
FG/PG AMP
(E-17)
Q540
muffler
(E-17)
D510
MA110
CN503 6P L 1.5P
EVF 4.9V
SS GND
EVF OUT
TALLY
UNREG
UNREG GND
TO SW-174P BOARD CN930
(See page 120.)
CN505 2P
BUZZER
GND
BZ901
BUZZER
SS GND
VTR DD ON
TALLY
SYS RESET
MECHA CS
DATA TO MASTER
DATA TO SLAVE
SCK
BUZZER
SYSTEM SYNC
EE CS
EE SCK
DATA TO EE
DATA TO MODE
P BOARD W501
ge 113.)

no mark REC/PB mode
( ) REC mode
< > PB mode
* Impossible to measure the voltage at the marked points

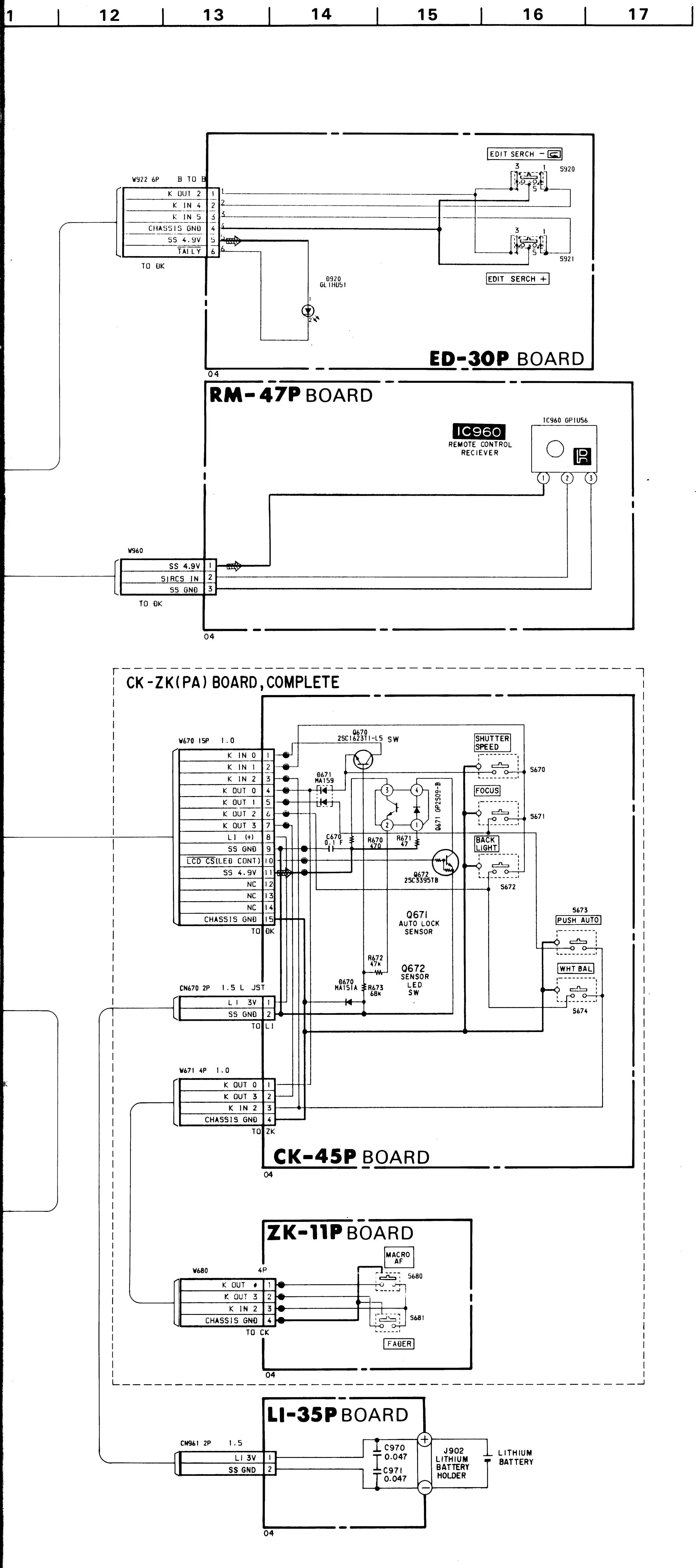
CK-45P, DK-11P, ED-30P (FUNCTION SWITCH), LI-35P (LITHIUM BATTERY TERMINAL), RM-47P (REMOTE CONTROL RECEIVER), VK-14P (FUNCTION SWITCH), ZK-11P (SWIT

—Ref. No. CK-45P, DK-11P, ED-30P, LI-35P, RM-47P, VK-14P and ZK-11P BOARDS : 5000 series—



1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
DK-11P BOARD
CN950 ZIF 20P
K IN 0
K IN 1
K IN 2
K IN 4
K IN 5
K OUT 0
K OUT 1
K OUT 2
K OUT 3
LI (+)
TALLY
SS 4.9V
DATA TO MASTER
SCK
REMO CS
SYSTEM RESET
SS GND
LCD CS
DATA TO SLAV
CHASSIS GND
TO VK
IC950
SIRCS CONTROL
μPD7564-540
Q950
DTC144EK
INV
R953 47k
R951 10k
R950 10k
R952 10k
R954 150
R955 100
R941 1k
X950 700K
C952 470p B
C951 330p B
C950 0.1 F
W953 6P
K OUT 2
K IN 4
K IN 5
CHASSIS GND
SS 4.9V
TALLY
TO ED
W952 3P
SS 4.9V
SIRCS IN
SS GND
TO RM
W951 15P
K IN 0
K IN 1
K IN 2
K OUT 0
K OUT 1
K OUT 2
K OUT 3
LI (+)
SS GND
LCD CS
SS 4.9V
SCK
SYSTEM RESET
DATA TO SLVE
CHASSIS GND
TO CK
04
VK-14P BOARD
W551 23P
K IN 0
K IN 1
K IN 2
K IN 3
K IN 4
K IN 5
K IN 6
K OUT 0
K OUT 1
K OUT 2
K OUT 3
K OUT 4
K OUT 5
LI (+)
TALLY
SS 4.9V
DATA TO MASTER
SCK
REMO CS
SYSTEM RESET
SS GND
LCD CS
DATA TO SLAV
TO FU
TO FU-100P BOARD CN502 (See page 114.)
R502 150
S514 POWER VTR OFF CAMERA
D509 MA159
AGE/EVENT S509
SLOW S513
Australian Model
● REC S510
FF S503
DATA SCREEN S508
FRAME S512
DATE (+) S507
TIME (NEXT) S506
S504
S505 PAUSE
S520
S500 REW
OFF ON
S521 BEEP
D530 MA110
S511 EDIT REC MODE SP/LP
COUNTER RESET S516
ZERO MEM S515
D508 MA151K
D523,524,526,527 DTZ12
D527 D526 D523 D524
W550 20P
TO DK
K IN 0
K IN 1
K IN 2
K IN 4
K IN 5
K OUT 0
K OUT 1
K OUT 2
K OUT 3
LI (+)
TALLY
SS 4.9V
DATA TO MASTER
SCK
REMO CS
SYSTEM RESET
SS GND
LCD CS
DATA TO SLAV
CHASSIS GND
04

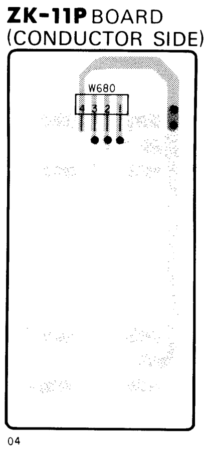
no mark : CAMERA STANDBY mode
✱: Impossible to measure the voltage at the marked points.


1
12
13
14
15
16
17
ED-30P BOARD
W922 6P B TO B
K OUT 2
K IN 4
K IN 5
CHASSIS GND
SS 4.9V
TALLY
TO DK
EDIT SERCH −
S920
S921
EDIT SERCH +
D920 GL1HD51
04
RM-47P BOARD
IC960
REMOTE CONTROL RECIEVER
IC960 GP1U56
W960
SS 4.9V
SIRCS IN
SS GND
TO DK
04
CK-ZK(PA) BOARD, COMPLETE
W670 15P 1.0
K IN 0
K IN 1
K IN 2
K OUT 0
K OUT 1
K OUT 2
K OUT 3
LI (+)
SS GND
LCD CS(LED CONT)
SS 4.9V
NC
NC
NC
CHASSIS GND
TO DK
Q670 2SC1623T1-L5 SW
Q671 MA159
SHUTTER SPEED
S670
FOCUS
S671
Q671 GP2S09-B
C670 0.1 F
R670 470
R671 47
BACK LIGHT
S672
Q672 2SC3395TB
Q671 AUTO LOCK SENSOR
S673
PUSH AUTO
R672 47k
Q672 SENSOR LED SW
D670 MA151A
R673 68k
WHT BAL
S674
CN670 2P 1.5 L JST
LI 3V
SS GND
TO LI
W671 4P 1.0
K OUT 0
K OUT 3
K IN 2
CHASSIS GND
TO ZK
CK-45P BOARD
04
ZK-11P BOARD
W680 4P
K OUT 4
K OUT 3
K IN 2
CHASSIS GND
TO CK
MACRO AF
S680
S681
FADER
04
LI-35P BOARD
CN961 2P 1.5
LI 3V
SS GND
C970 0.047
C971 0.047
J902 LITHIUM BATTERY HOLDER
LITHIUM BATTERY
04

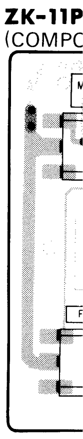
CK-45P, DK-11P, ED-30P (FUNCTION S

—Ref. No. CK-45P, DK-11P, ED-30P, LI-35

ZK-11P BOARD (CONDUCTOR SIDE)



ZK-11P (COMPO



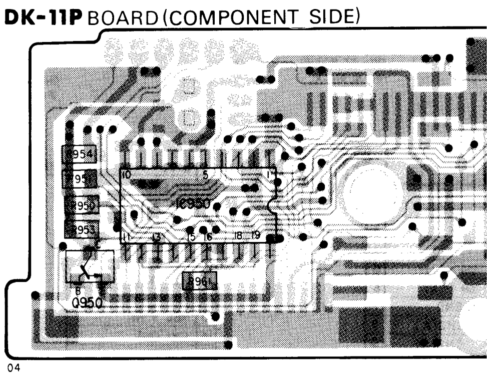
< IC >

IC950 8-759-145-63 uPD7564G-540

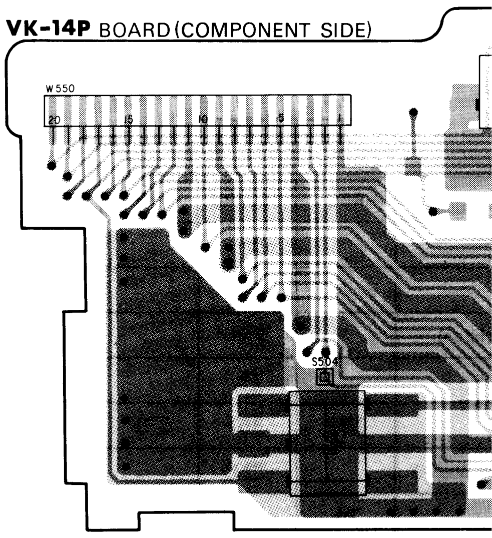
< TRANSISTOR >

Q950 8-729-901-01 DTC144EK

DK-11P BOARD (COMPONENT SIDE)


IC950
Q950
04

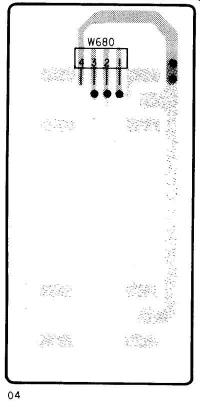
VK-14P BOARD (COMPONENT SIDE)


W550
20
15
10
5
1
S504
04

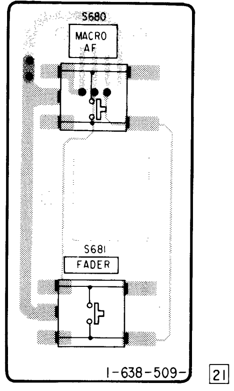
CK-45P, DK-11P, ED-30P (FUNCTION SWITCH), LI-35P (LITHIUM BATTERY TERMINAL), RM-47P (REMOTE CONTROL RECEIVER), VK-14P (FUNCTION SWI

—Ref. No. CK-45P, DK-11P, ED-30P, LI-35P, RM-47P, VK-14P and ZK-11P BOARDS : 5000 series—

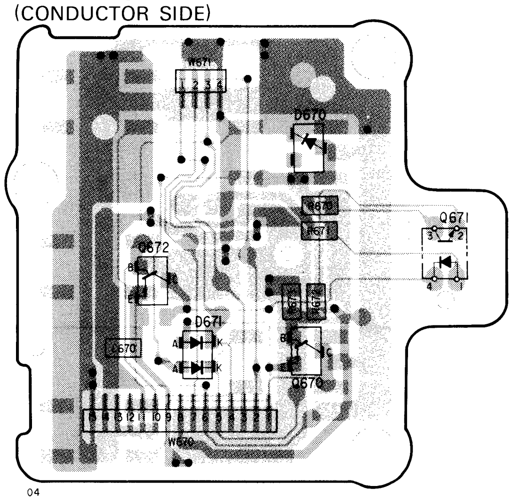
ZK-11P BOARD
(CONDUCTOR SIDE)


W680
4 3 2 1
04

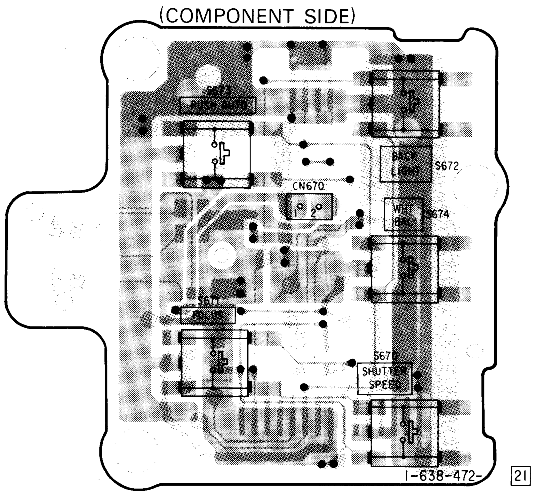
ZK-11P BOARD
(COMPONENT SIDE)


S680
MACRO AF
S681
FADER
1-638-509-
21

CK-45P BOARD
(CONDUCTOR SIDE)


W671
D670
Q671
Q672
D671
Q670
D670
W670
04

CK-45P BOARD
(COMPONENT SIDE)


S673
PUSH AUTO
CN670
BACK LIGHT
S672
WHT BAL
S674
S675
FOCUS
S670
SHUTTER SPEED
1-638-472-
21

< DI

D670
D671

< TR

Q670
Q671
Q672

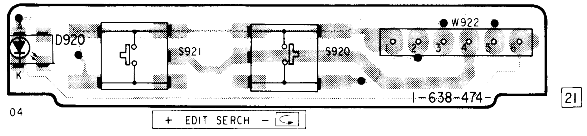
< IC >

IC950	8-759-145-63	uPD7564G-540

< TRANSISTOR >

Q950	8-729-901-01	DTC144EK

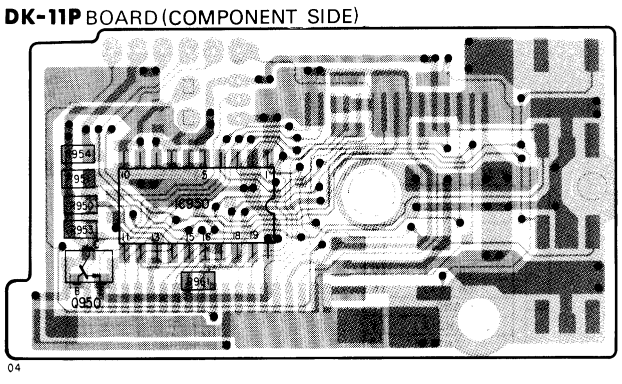
ED-30P BOARD(COMPONENT SIDE)


D920
K
S921
S920
W922
1-638-474-
21
04
+ EDIT SERCH -

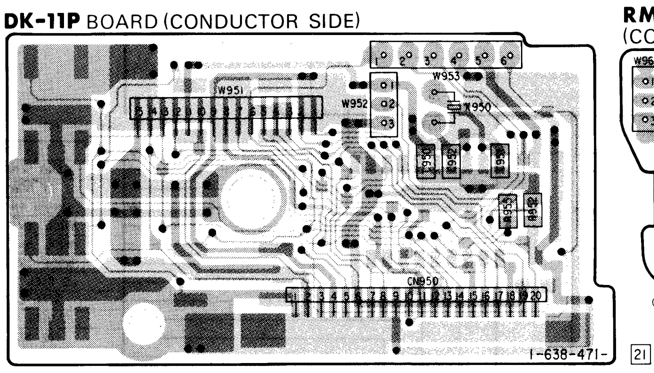
< DIODE >

D920	8-719-941-34	GL-1HD51

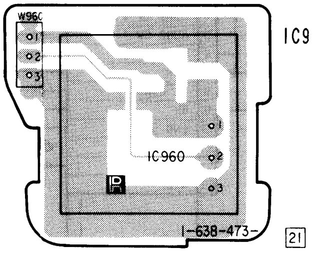
DK-11P BOARD(COMPONENT SIDE)


IC950
Q950
04

DK-11P BOARD(CONDUCTOR SIDE)


W951
W952
W953
CN950
1-638-471-
21

RM-47P BOARD
(CONDUCTOR SIDE)


W960
IC960
1-638-473-
21
04

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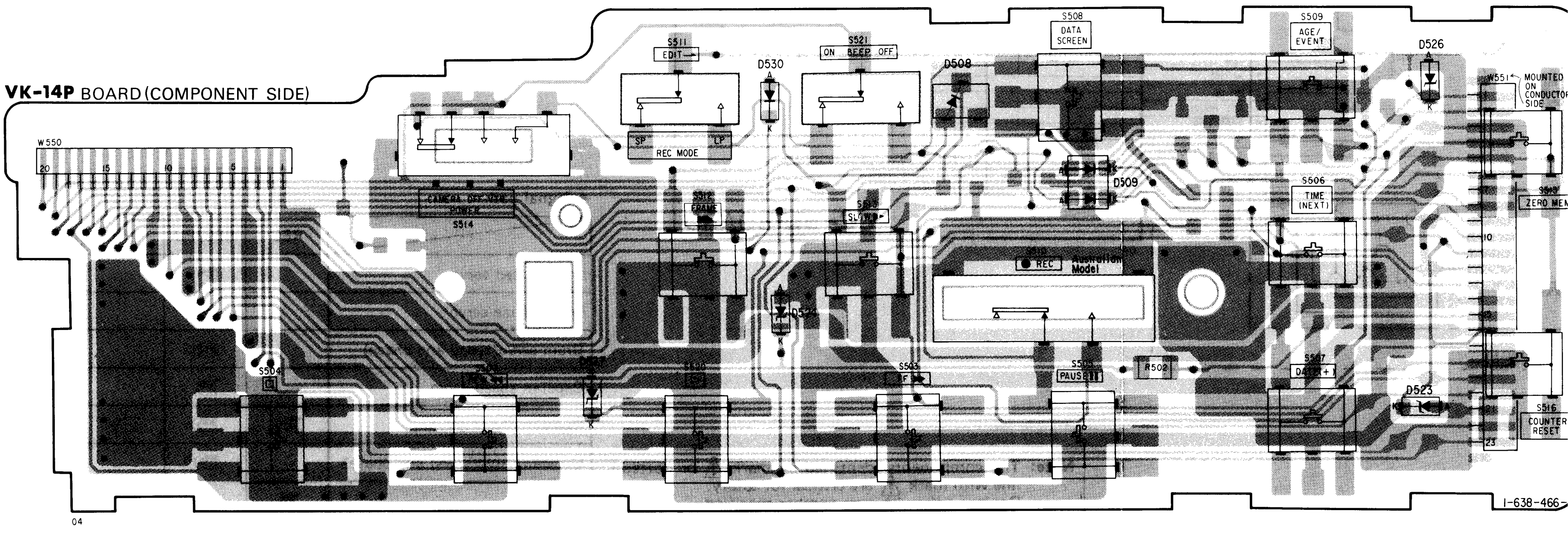
IC960	8-749-921-76	GP1U56

VK-14P BOARD(COMPONENT SIDE)

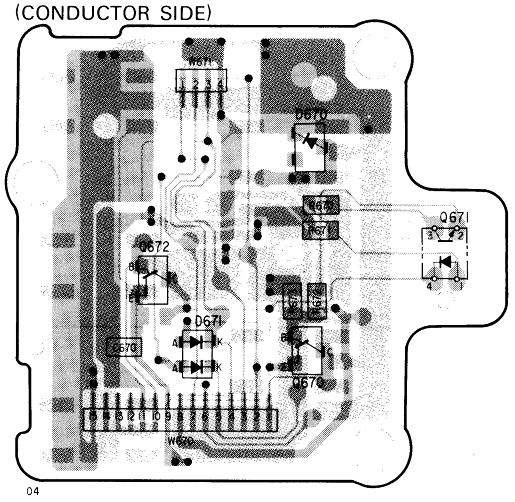

W550
S511
EDIT
S521
ON BEEP OFF
D530
D508
S508
DATA SCREEN
S509
AGE/ EVENT
D526
W551
MOUNTED ON CONDUCTOR SIDE
SP
REC MODE
LP
S514
S515
FRAME
S512
SLOW
D509
REC
S506
TIME (NEXT)
S513
ZERO MEM
S504
S503
PAUSE
R502
S507
DATE
D523
S516
COUNTER RESET
1-638-466-
04

FUNCTION FUNCTION

-35P (LITHIUM BATTERY TERMINAL), RM-47P (REMOTE CONTROL RECEIVER), VK-14P (FUNCTION SWITCH), ZK-11P (SWITCH) PRINTED WIRING BOARDS

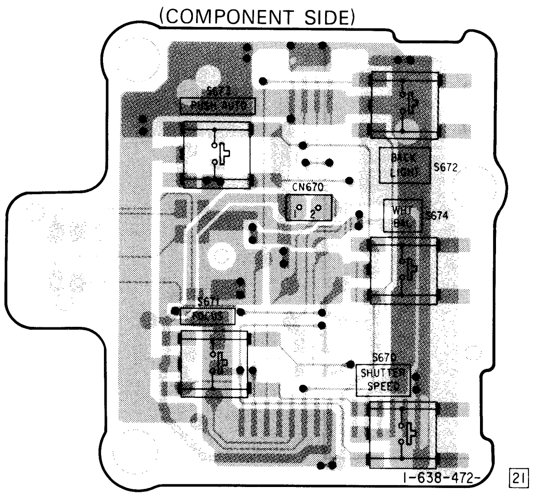
K-14P and ZK-11P BOARDS : 5000 series—

CK-45P BOARD
(CONDUCTOR SIDE)



W671
D670
Q671
Q672
D671
Q670
S670
W670
04
21

CK-45P BOARD
(COMPONENT SIDE)



S673
PUSH AUTO
BACK LIGHT
S672
CN670
S674
S671
FOCUS
S670
SHUTTER SPEED
1-638-472-
21

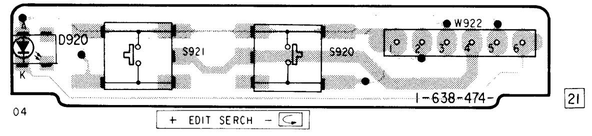
< DIODE >

D670	8-719-420-36	MA151A
D671	8-719-940-45	DWA010

< TRANSISTOR >

Q670	8-729-100-66	2SC1623
Q671	8-719-939-11	GP-2S09-B
Q672	8-729-805-45	2SC3395

ED-30P BOARD(COMPONENT SIDE)

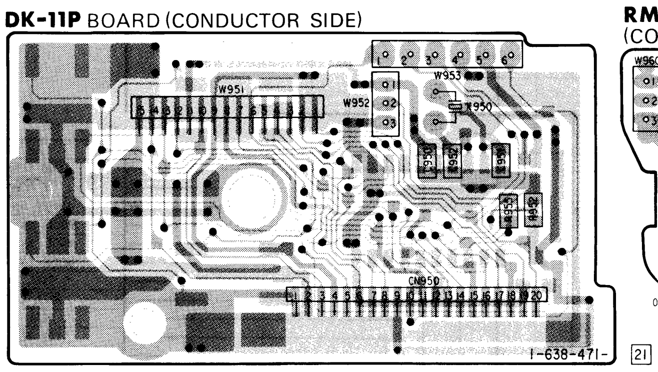


D920
S921
S920
W922
1-638-474-
21
04
+ EDIT SERCH -

< DIODE >

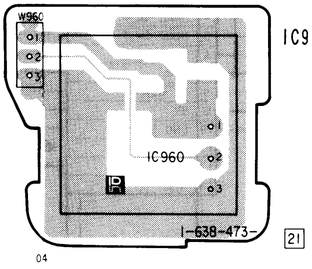
D920	8-719-941-34	GL-1HD51

DK-11P BOARD (CONDUCTOR SIDE)



W951
W952
W953
W950
CN950
1-638-471-
21

RM-47P BOARD
(CONDUCTOR SIDE)

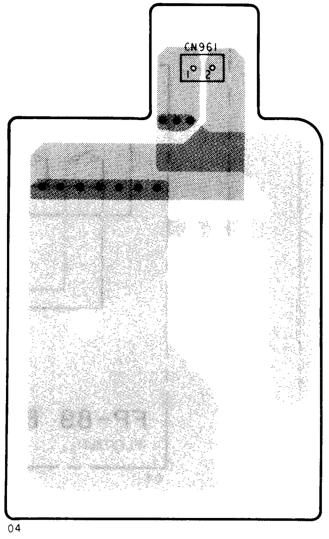


W960
IC960
1-638-473-
21
04

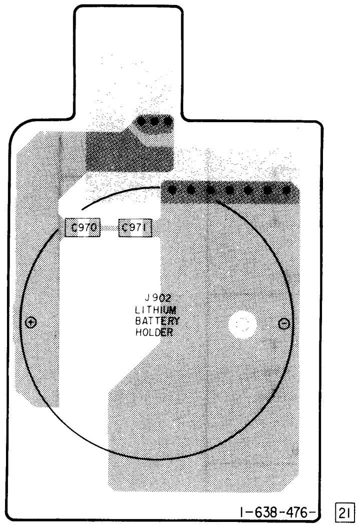
< IC >

IC960	8-749-921-76	GP1U56

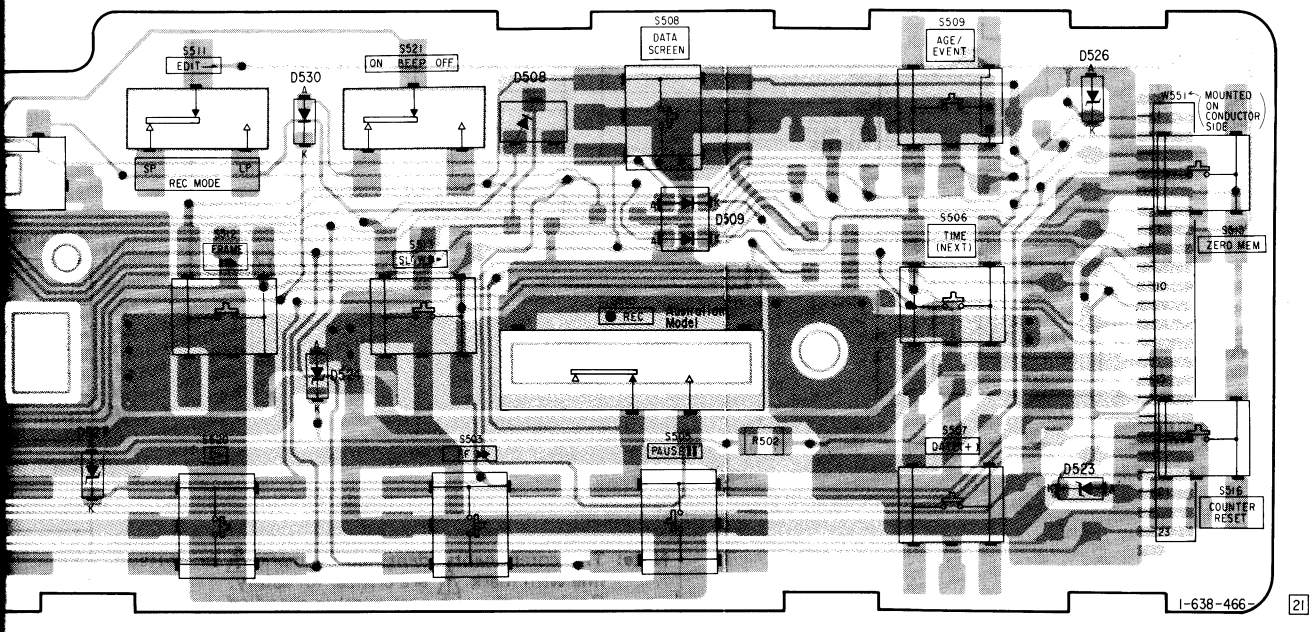
LI-35P BOARD
(CONDUCTOR SIDE)



LI-35P BOARD
(COMPONENT SIDE)



C970
C971
J902 LITHIUM BATTERY HOLDER
1-638-476-
21



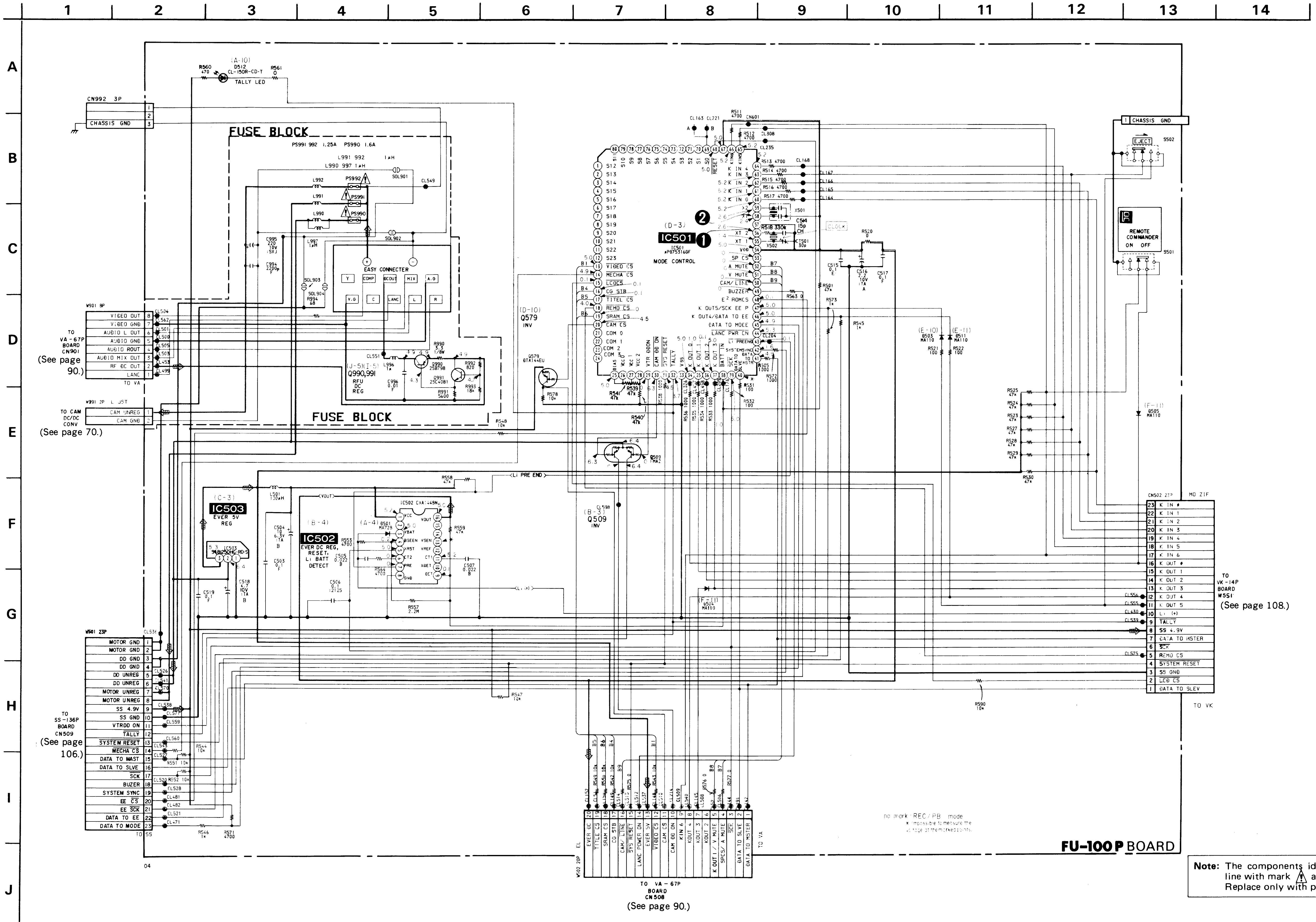
S511 EDIT
S521 ON BEEP OFF
D530
D508
S508 DATA SCREEN
S509 AGE/EVENT
D526
W551 MOUNTED ON CONDUCTOR SIDE
SP REC MODE LP
D509
S506 TIME (NEXT)
S512 ZERO MEM
REC
Illustration Model
S505
S501 PAUSE
R502
S507 DATE
D523
S516 COUNTER RESET
1-638-466-
21

< DIODE >

D508	8-719-420-33	MA151K
D509	8-719-940-45	DWA010
D523	8-719-977-34	DTZ12
D524	8-719-977-34	DTZ12
D526	8-719-977-34	DTZ12
D527	8-719-977-34	DTZ12
D530	8-719-404-46	MA110

FU-100P (MODE CONTROL, MAIN BATTERY TERMINAL) SCHEMATIC DIAGRAM

—Ref. No. FU-100P BOARD : 5000 series—


1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H I J
CN992 3P
CHASSIS GND
R560 470
D512 CL-150R-CD-T
TALLY LED
R561 0
FUSE BLOCK
PS991 992 1.25A PS990 1.6A
L991 992 1μH
L990 997 1μH
SOL901
SOL902
CL549
PS992
PS991
PS990
EASY CONNECTER
Y COMP BCOUT MIX A.G
Y.G C LANC L R
SOL903
SOL904
R994 68
C995 220 10V :SX
C994 2200p F
CL551
L996 1μ
Q990 2SB798
Q991 2SC4081
R990 3.3 1/8W
R992 820
R993 18k
R991 5600
C996 0.01 F
(J-5)(I-5) Q990,991 RFU DC REG
W901 8P
VIDEO OUT 8
VIDEO GND 7
AUDIO L OUT 6
AUDIO GND 5
AUDIO ROUT 4
AUDIO MIX OUT 3
RF DC OUT 2
LANC 1
TO VA
TO VA-67P BOARD CN901 (See page 90.)
CL504 CL562 CL501 CL500 CL505 CL503 CL453 CL499
W991 2P L JST
CAM UNREG 1
CAM GND 2
TO CAM DC/DC CONV (See page 70.)
(C-3) IC503 EVER 5V REG
C519 0.1 F
C518 4.7 10V :TA B
L501 150μH
(B-4) IC502 EVER DC REG, RESET, Li BATT DETECT
IC502 CXA1149N
(A-4) D501 MA728
R553 4700
C504 10 6.3V :TA B
C503 0.1 F
C505 0.022 B
R554 4700
C506 0.1 2125
R557 2.2M
R559 47k
C507 0.022 B
R558 47k
<Li PRE END>
VOUT
VCC VBAT VSEEN VSEN VREF RST CT1 CT2 XSET PRE OET1 GND
W501 23P
MOTOR GND 1
MOTOR GND 2
DD GND 3
DD GND 4
DD UNREG 5
DD UNREG 6
MOTOR UNREG 7
MOTOR UNREG 8
SS 4.9V 9
SS GND 10
VTRDD ON 11
TALLY 12
SYSTEM RESET 13
MECHA CS 14
DATA TO MAST 15
DATA TO SLVE 16
SCK 17
BUZER 18
SYSTEM SYNC 19
EE CS 20
EE SCK 21
DATA TO EE 22
DATA TO MODE 23
TO SS
TO SS-136P BOARD CN509 (See page 106.)
CL536 CL526 CL541 CL570 CL538 CL571 CL559 CL560 CL543 CL527 CL520 CL528 CL481 CL482 CL521 CL471
R544 10k
R551 10k
R552 10k
R546 1k
R571 4700
04
(D-10) Q579 INV
Q579 DTA144EU
R578 10k
R548 10k
R547 10k
(B-3) Q509 INV
Q509
R540 47k
R541 47k
R539 47k
(D-3) IC501 MODE CONTROL
IC501 μPD75316GF
CL163 CL221
R511 4700
CN601
CL308
R512 4700
CL235
R513 4700
R514 4700
R515 4700
R516 4700
R517 4700
CL168
CL167 CL166 CL165 CL164
X501
C514 15p CH
R518 330k
C1501 30p
X502
CLOCK
S12 S13 S14 S15 S16 S17 S18 S19 S20 S21 S22 S23
VIDEO CS
MECHA CS
LCDCS
CG STB
TITEL CS
REMO CS
SRAM CS
CAM CS
COM 0 COM 1 COM 2 COM 3
RESET
K IN 4 K IN 3 K IN 2 K IN 1 K IN 0
XT 2 XT 1 VDD
SP CS
A MUTE
V MUTE
CAM/LINE
BUZZER
E² ROMCS
K OUT5/SCK EE P
K OUT4/DATA TO EE
DATA TO MODE
LANC PWR ON
Li PREEND
SYSTEMS/NC
DATA TO MSTR
K OUT 0 K OUT 1 K OUT 2 K OUT 3
VTR DDON
CAM DD ON
SYS RESET
TALLY
SYS
B1 B4 B5 B6 B7 B8 B9
R563 0
R531 100
R532 100
R525 1000
R572 1000
R536 1000 R535 1000 R534 1000 R533 1000
C515 0.1 E
C516 2.2 10V :TA A
C517 0.1 F
R520 0
R501 47k
R573 1k
R545 1k
(E-10) D503 MA110
(E-11) D511 MA110
R521 100
R522 100
R525 47k R524 47k R523 47k R527 47k R528 47k R529 47k R530 47k
(F-11) D505 MA110
(F-11) D504 MA110
R590 10k
CHASSIS GND
EJECT
S502
REMOTE COMMANDER ON OFF
S501
CN502 23P MO ZIF
23 K IN 0
22 K IN 1
21 K IN 2
20 K IN 3
19 K IN 4
18 K IN 5
17 K IN 6
16 K OUT 0
15 K OUT 1
14 K OUT 2
13 K OUT 3
12 K OUT 4
11 K OUT 5
10 Li (+)
9 TALLY
8 SS 4.9V
7 DATA TO MSTER
6 SCK
5 REMO CS
4 SYSTEM RESET
3 SS GND
2 LCD CS
1 DATA TO SLEV
CL556 CL555 CL430 CL539 CL575
TO VK-14P BOARD W551 (See page 108.)
TO VK
W502 20P EL
20 EVER DC
19 TITLE CS
18 SRAM CS
17 CG STB
16 CAM/LINE
15 SYS RESET
14 LANC POWER ON
13 EVER 5V
12 VIDEO CS
11 CAM CS
10 CAM DD ON
9 KIN 6
8 KOUT 4
7 KOUT 3
6 KOUT 2
5 K OUT 1 / V MUTE
4 SPCS/ A MUTE
3 SCK
2 DATA TO SLVE
1 DATA TO MSTER
TO VA
R549 10k R550 10k R542 10k R575 0 R543 10k R576 0 R577 0
CL152 CL514 CL537 CL509 CL540 CL508 CL506 CL144
TO VA-67P BOARD CN508 (See page 90.)
no mark : REC/PB mode
FU-100P BOARD

< DIODE >

D501	8-719-421
D503	8-719-404
D504	8-719-404
D505	8-719-404
D511	8-719-404
D512	8-719-989

< IC >

IC501	8-759-154
IC502	8-759-511
IC503	8-759-937

< TRANSISTOR >

Q509	8-729-904
Q579	8-729-905
Q990	8-729-101
Q991	8-729-905

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

FU-100P (MODE CONTROL, MAIN BATTERY TERMINAL) PRINTED WIRING BOARD
—Ref. No. FU-100P BOARD : 5000 series—

< DIODE >

D501	8-719-421-27	MA728
D503	8-719-404-46	MA110
D504	8-719-404-46	MA110
D505	8-719-404-46	MA110
D511	8-719-404-46	MA110
D512	8-719-989-22	CL-150R-CD

< IC >

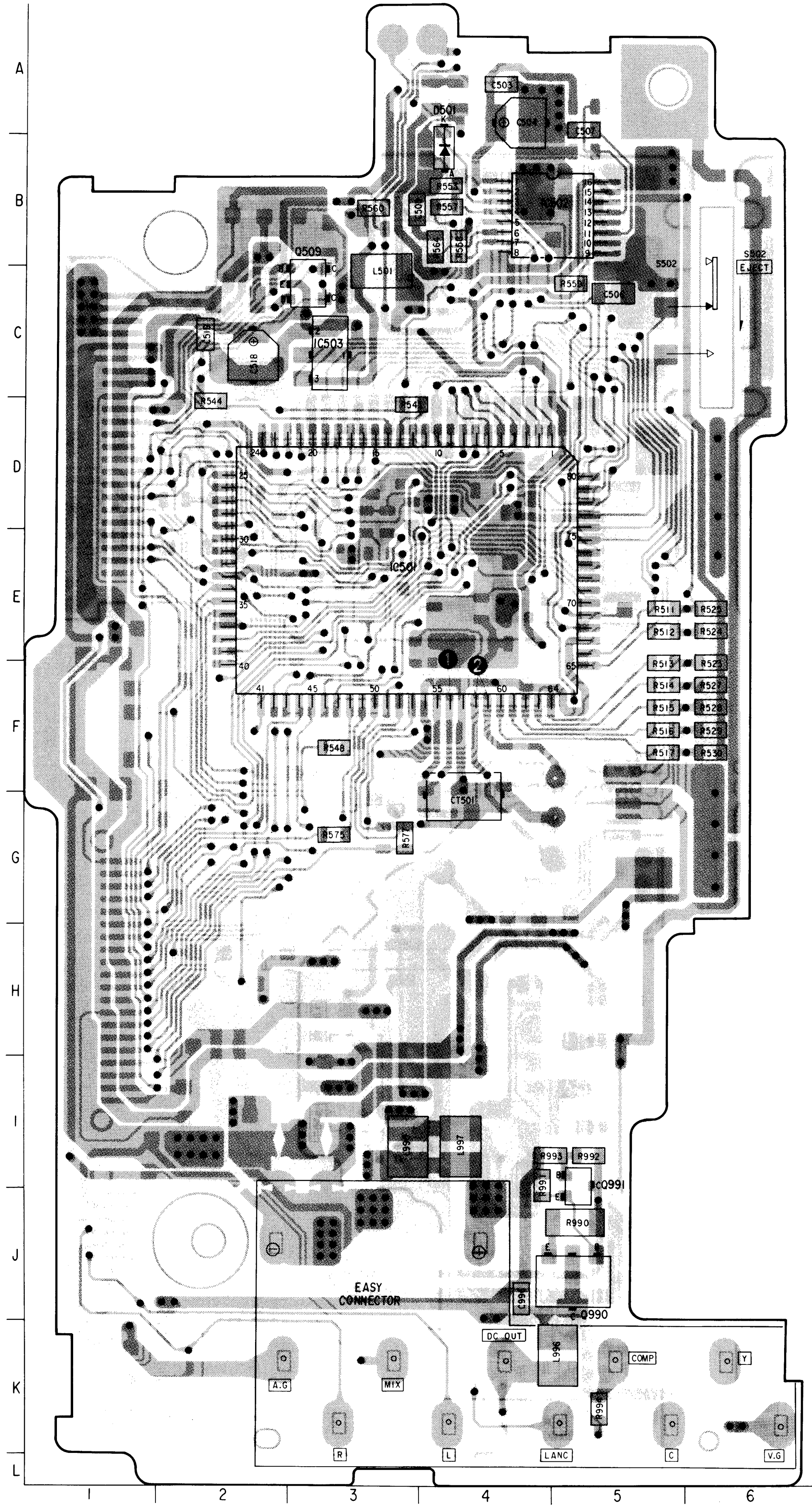
IC501	8-759-154-18	uPD75316GF-116-3B9
IC502	8-759-511-22	CXA1448N
IC503	8-759-937-54	S-81250HG-RD-S

< TRANSISTOR >

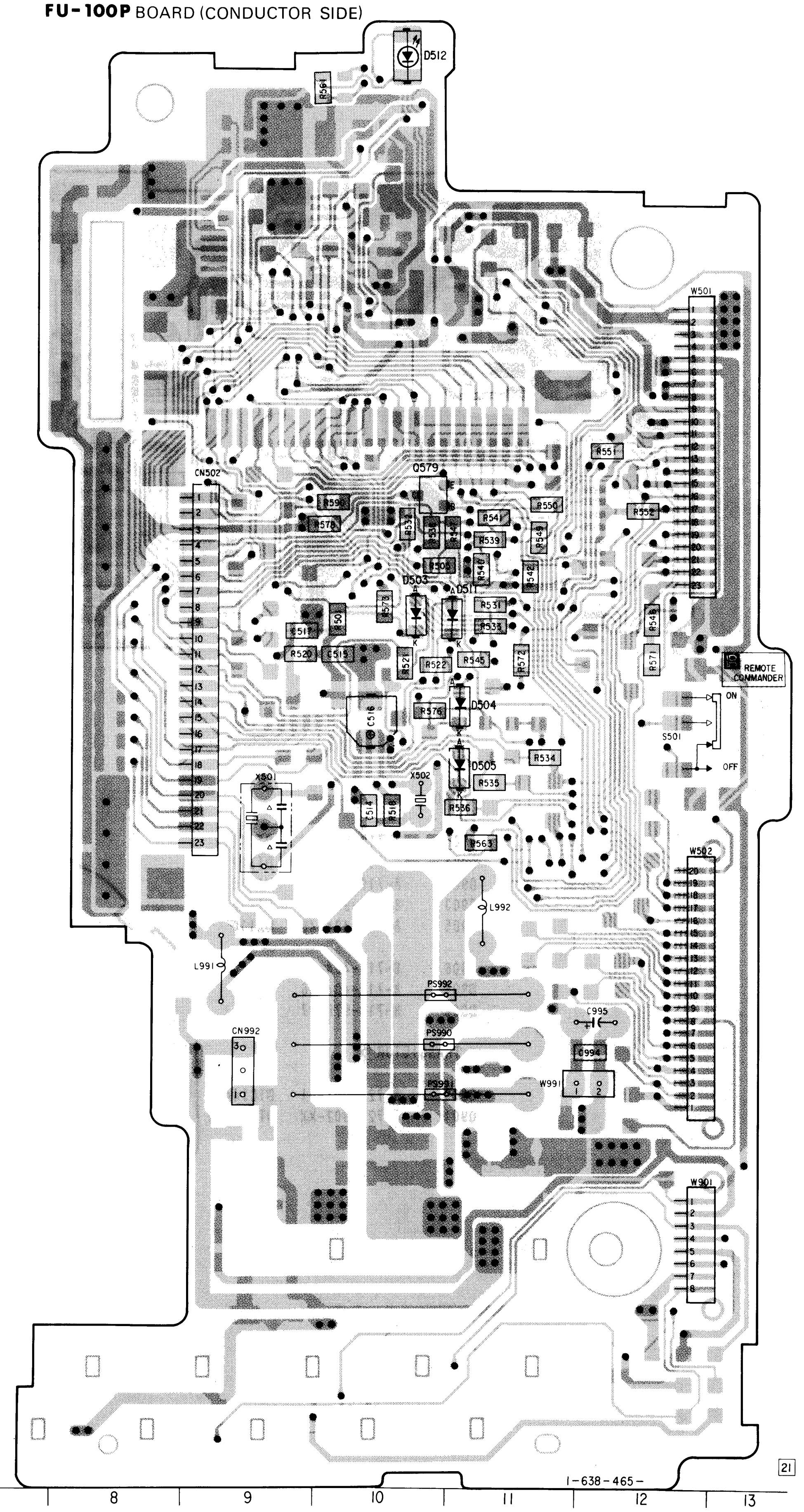
Q509	8-729-904-20	FMA2
Q579	8-729-905-12	DTA144EU
Q990	8-729-101-07	2SB798-DL
Q991	8-729-905-35	2SC4081-R

entified by mark ⚠ or dotted
re critical for safety.
art number specified.

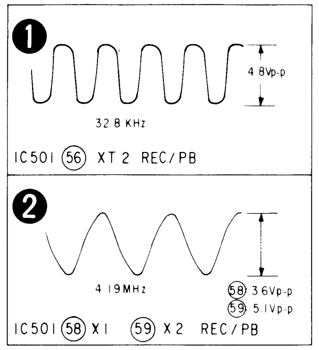
FU-100P BOARD (COMPONENT SIDE)


A
B
C
D
E
F
G
H
I
J
K
L
D501
C503
C504
C507
IC502
R560
R553
R551
R556
R550
Q509
L501
R559
C506
S502
EJECT
IC503
C518
R544
R554
IC501
R511
R512
R513
R514
R515
R516
R517
R521
R524
R523
R527
R529
R528
R530
R548
CT501
R575
R577
L997
R993
R992
R991
Q991
R990
EASY CONNECTOR
DC OUT
Q990
L996
R996
A.G
MIX
COMP
Y
R
L
LANC
C
V.G
1
2
3
4
5
6

FU-100P BOARD (CONDUCTOR SIDE)


D512
R591
W501
CN502
Q579
R551
R550
R552
R578
R541
R539
R546
R508
D503
D511
R517
R520
R515
R522
R531
R533
R545
R576
D504
R534
D505
R535
X501
X502
R536
R563
R571
R572
REMOTE COMMANDER
ON
S501
OFF
W502
L992
L991
PS992
C995
PS990
CN992
C994
W991
PS991
W901
1-638-465-
21
7
8
9
10
11
12
13

FU - 100P BOARD



MC-76P (MIC), SW-174P (SWITCH, JACK) PRINTED WIRING BOARDS
—Ref. No. MC-76P and SW-174P BOARDS : 4000 series—

< DIODE >

D655	8-719-404-46	MA110

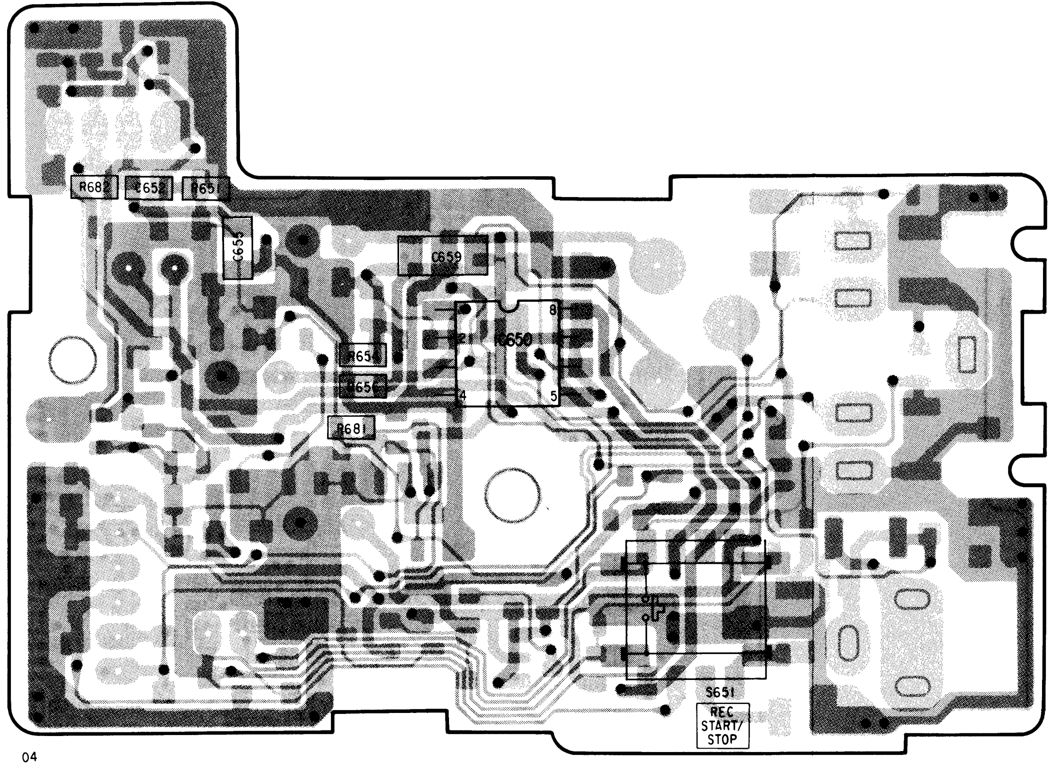
< IC >

IC650	8-759-822-37	LA7293M

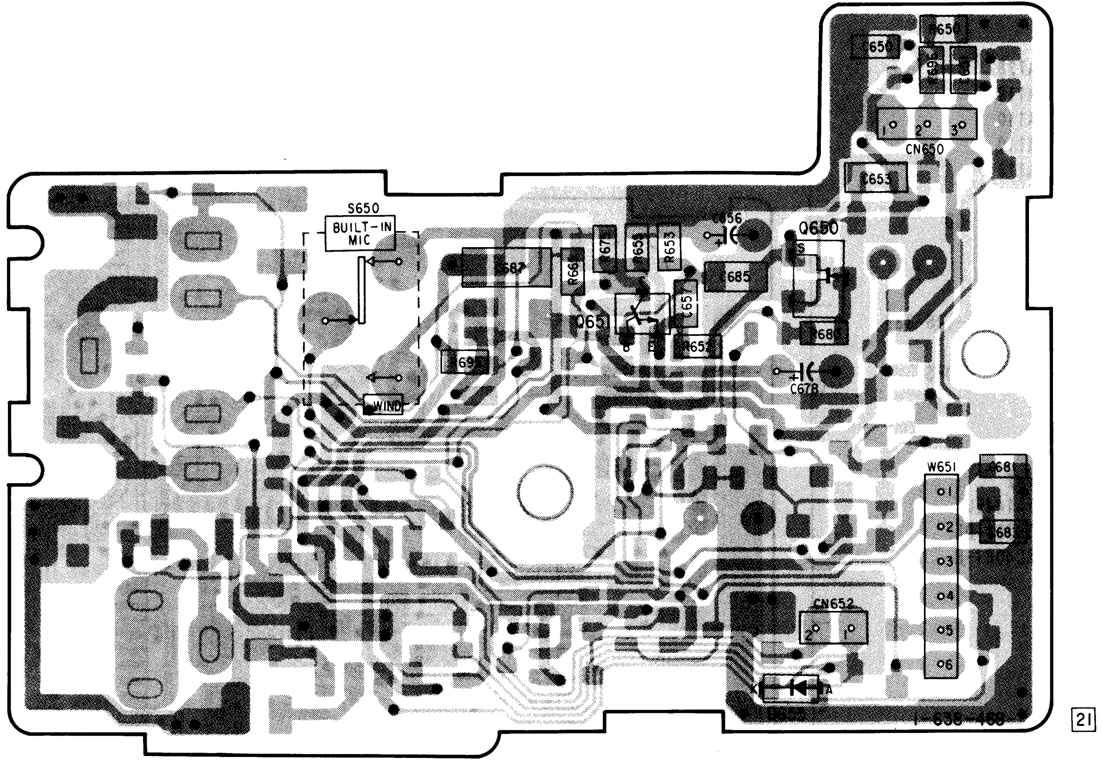
< TRANSISTOR >

Q650	8-729-109-44	2SK94
Q651	8-729-905-35	2SC4081-R

MC-76P BOARD(CONDUCTOR SIDE)


R682
C652
R657
C655
C659
R654
R656
IC650
R681
S651
REC START/ STOP
04

MC-76P BOARD(CONDUCTOR SIDE)


C650
R650
CN650
C653
S650
BUILT-IN MIC
WIND
C656
Q650
R685
Q651
R652
C678
W651
R683
CN652
1-638-468-
21

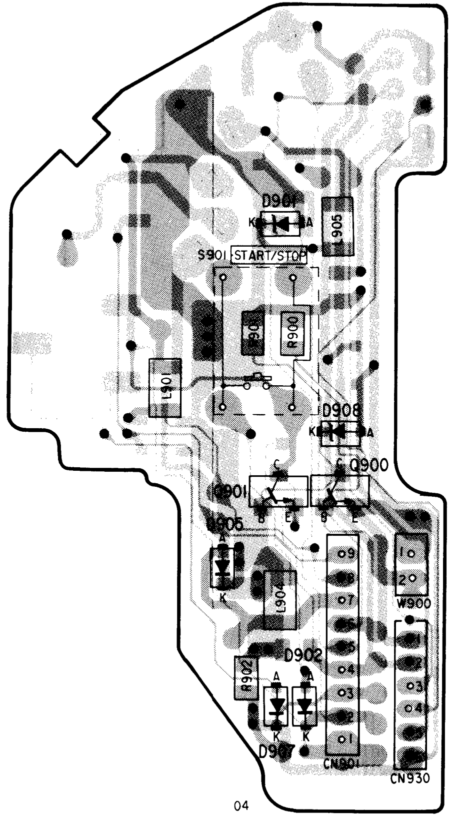
SW-174P BOARD
(COMPONENT SIDE)

< DIODE >

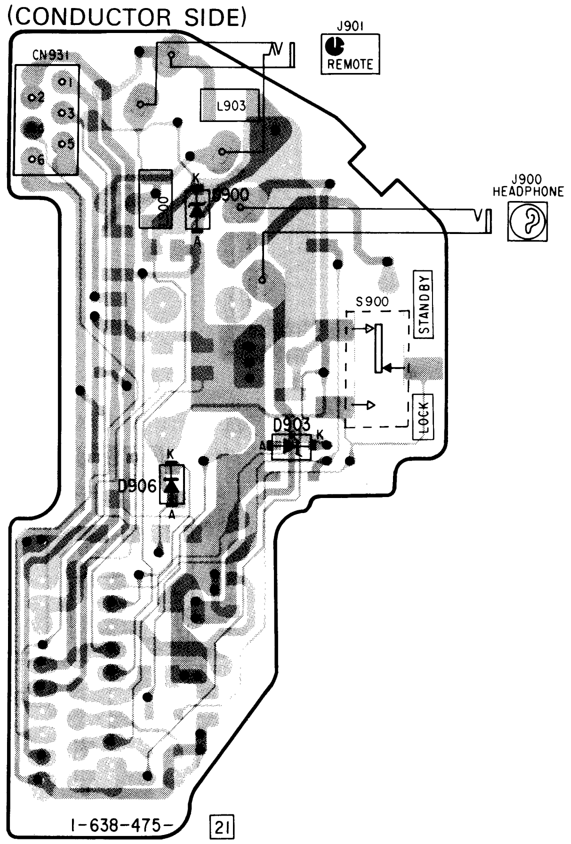
D900	8-719-977-34	DTZ12
D901	8-719-977-34	DTZ12
D902	8-719-404-46	MA110
D903	8-719-977-34	DTZ12
D905	8-719-404-46	MA110
D906	8-719-404-46	MA110
D907	8-719-404-46	MA110
D908	8-719-976-97	DTZ5.1

< TRANSISTOR >

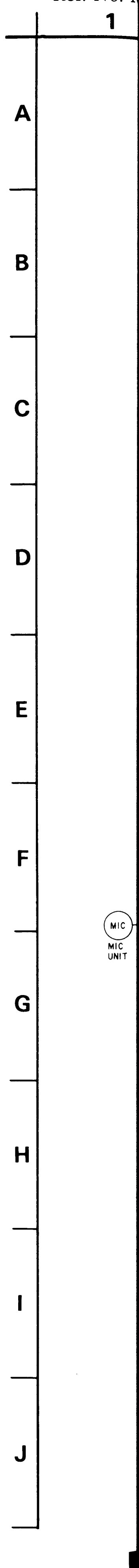
Q900	8-729-901-01	DTC144EK
Q901	8-729-902-XX	DTC114TK


D901
S901 START/STOP
R900
L901
D908
Q901
Q900
D905
W900
L904
R902
D902
D907
CN901
CN930
04

SW-174P BOARD
(CONDUCTOR SIDE)

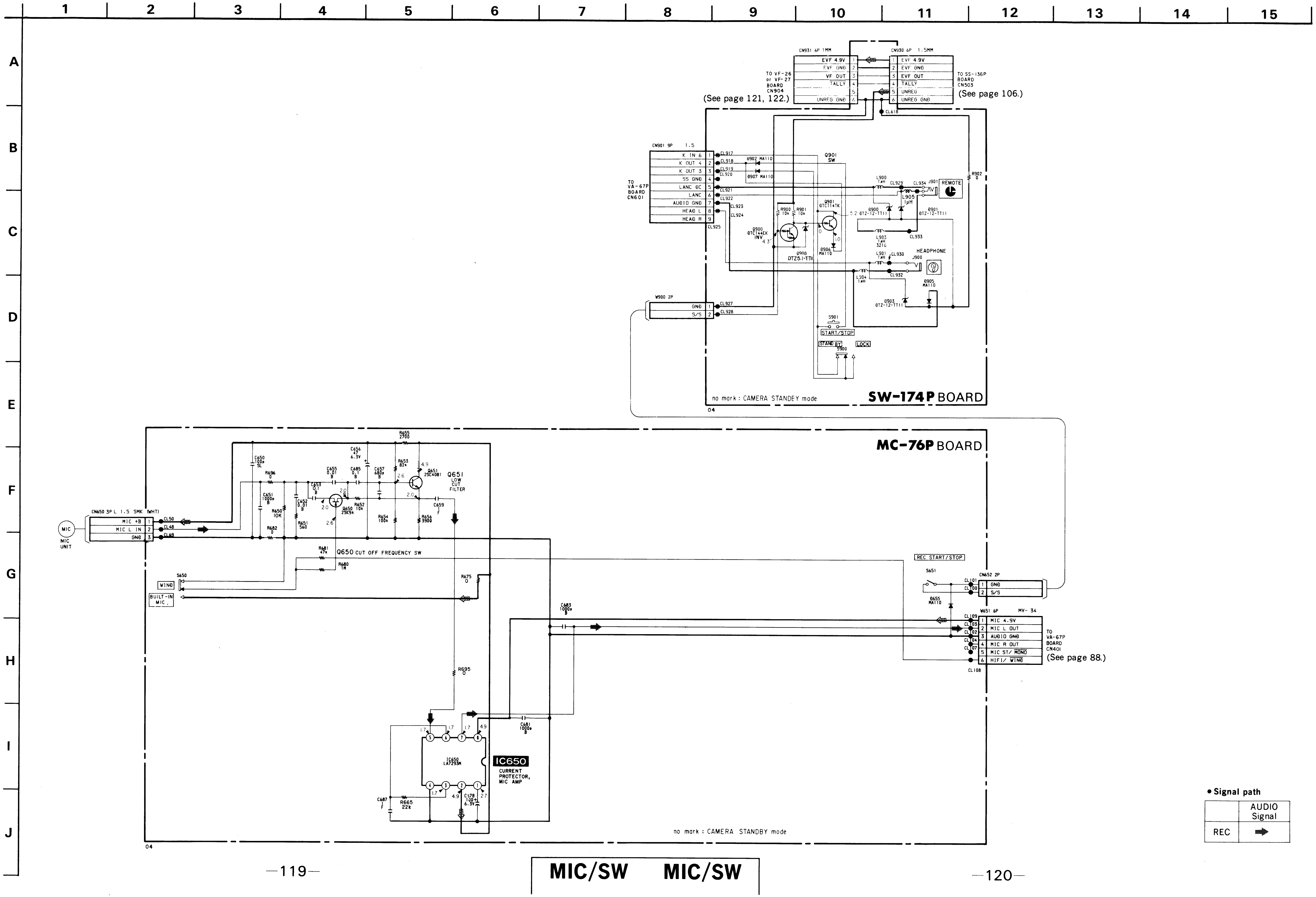

J901
REMOTE
CN931
L903
D900
J900
HEADPHONE
S900
STANDBY
LOCK
D903
D906
1-638-475-
21

MC-76P (M
—Ref. No. M


1
A
B
C
D
E
F
G
H
I
J
MIC
MIC UNIT

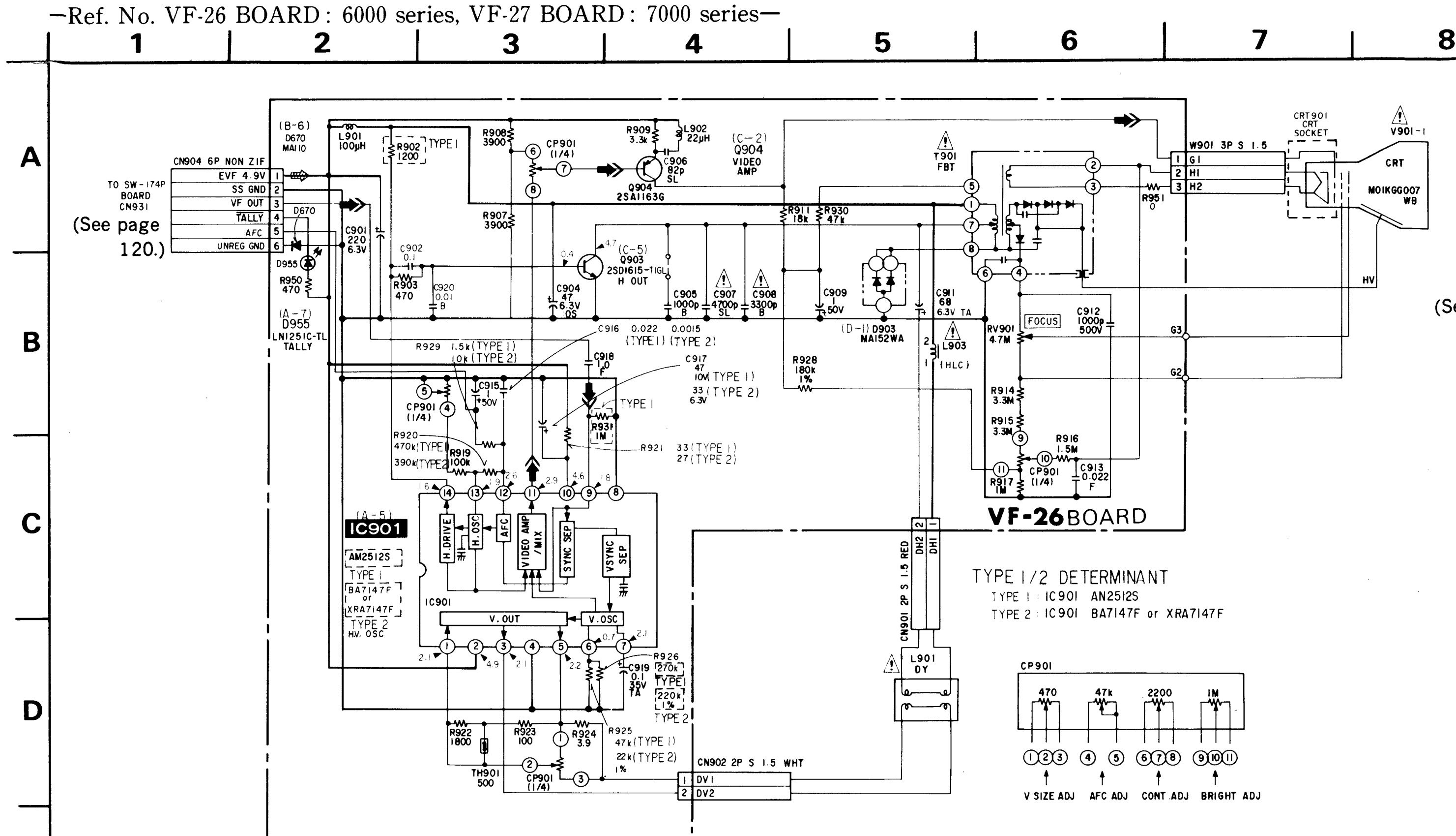
MC-76P (MIC), SW-174P (SWITCH, JACK) SCHEMATIC DIAGRAM

—Ref. No. MC-76P and SW-174P BOARDS : 4000 series—


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
CN931 6P 1MM
EVF 4.9V
EVF GND
VF OUT
TALLY
UNREG GND
TO VF-26 or VF-27 BOARD CN904
(See page 121, 122.)
CN930 6P 1.5MM
EVF 4.9V
EVF GND
EVF OUT
TALLY
UNREG
UNREG GND
TO SS-136P BOARD CN503
(See page 106.)
CL618
CN901 9P 1.5
K IN 6
K OUT 4
K OUT 3
SS GND
LANC DC
LANC
AUDIO GND
HEAD L
HEAD R
TO VA-67P BOARD CN601
D902 MA110
D907 MA110
Q901 SW
Q900 DTC144EK INV
Q901 DTC114TK
D908 DTZ5.1-TTII
D906 MA110
L900 1μH
L905 1μH
J901
REMOTE
R902 0
D900 DTZ-12-TT11
D901 DTZ-12-TT11
L903 1μH
L901 1μH
L904 1μH
HEADPHONE
J900
D905 MA110
D903 DTZ-12-TT11
W900 2P
GND
S/S
S901
START/STOP
STAND BY
S900
LOCK
no mark : CAMERA STANDBY mode
SW-174P BOARD
MC-76P BOARD
MIC
MIC UNIT
CN650 3P L 1.5 SMK (WHT)
MIC +B
MIC L IN
GND
CL50
CL48
CL49
Q651 2SC4081
Q651 LOW CUT FILTER
Q650 2SK94
Q650 CUT OFF FREQUENCY SW
R655 2700
R653 82k
R656 3900
R654 100k
C659
R681 47k
R680 1M
S650
WIND
BUILT-IN MIC
R675 0
R695 0
C683 1000p B
C681 1000p B
IC650 LA7293M
IC650
CURRENT PROTECTOR, MIC AMP
R665 22k
C687
C678 100μ 6.3V
REC START/STOP
S651
CN652 2P
GND
S/S
D655 MA110
W651 6P MV-34
MIC 4.9V
MIC L OUT
AUDIO GND
MIC R OUT
MIC ST/MONO
HIFI/WIND
TO VA-67P BOARD CN401
(See page 88.)
CL108
no mark : CAMERA STANDBY mode
04
• Signal path
AUDIO Signal
REC
➡

VF-26, VF-27 (VIEWFINDER) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

—Ref. No. VF-26 BOARD: 6000 series, VF-27 BOARD: 7000 series—


1
2
3
4
5
6
7
8
A
B
C
D
E
TO SW-174P BOARD CN931
(See page 120.)
CN904 6P NON ZIF
EVF 4.9V
SS GND
VF OUT
TALLY
AFC
UNREG GND
IC901
AN2512S TYPE 1
BA7147F or XRA7147F TYPE 2
H.DRIVE
H.OSC
AFC
VIDEO AMP /MIX
SYNC SEP
VSYNC SEP
V.OUT
V.OSC
Q903 2SD1615-TIGL H OUT
Q904 2SA1163G VIDEO AMP
T901 FBT
W901 3P S 1.5
G1
H1
H2
CRT901 CRT SOCKET
V901-1 CRT M01KGG007WB
HV
FOCUS
RV901
D903 MA152WA
D955 LN1251C-TL TALLY
D670 MA110
L901 DY
CN901 2P S 1.5 RED
CN902 2P S 1.5 WHT
DV1
DV2
TH901 500
VF-26 BOARD
TYPE 1/2 DETERMINANT
TYPE 1: IC901 AN2512S
TYPE 2: IC901 BA7147F or XRA7147F
CP901
470
47k
2200
1M
V SIZE ADJ
AFC ADJ
CONT ADJ
BRIGHT ADJ
04
no mark: REC/PB mode (VTR)
[ ]: REC mode (VTR)
( ): PB mode (VTR)

• Signal path

	VIDEO Signal		
	CHROMA	Y	Y/CHROMA
REC	➡	➡»	➡»»

< DIODE >

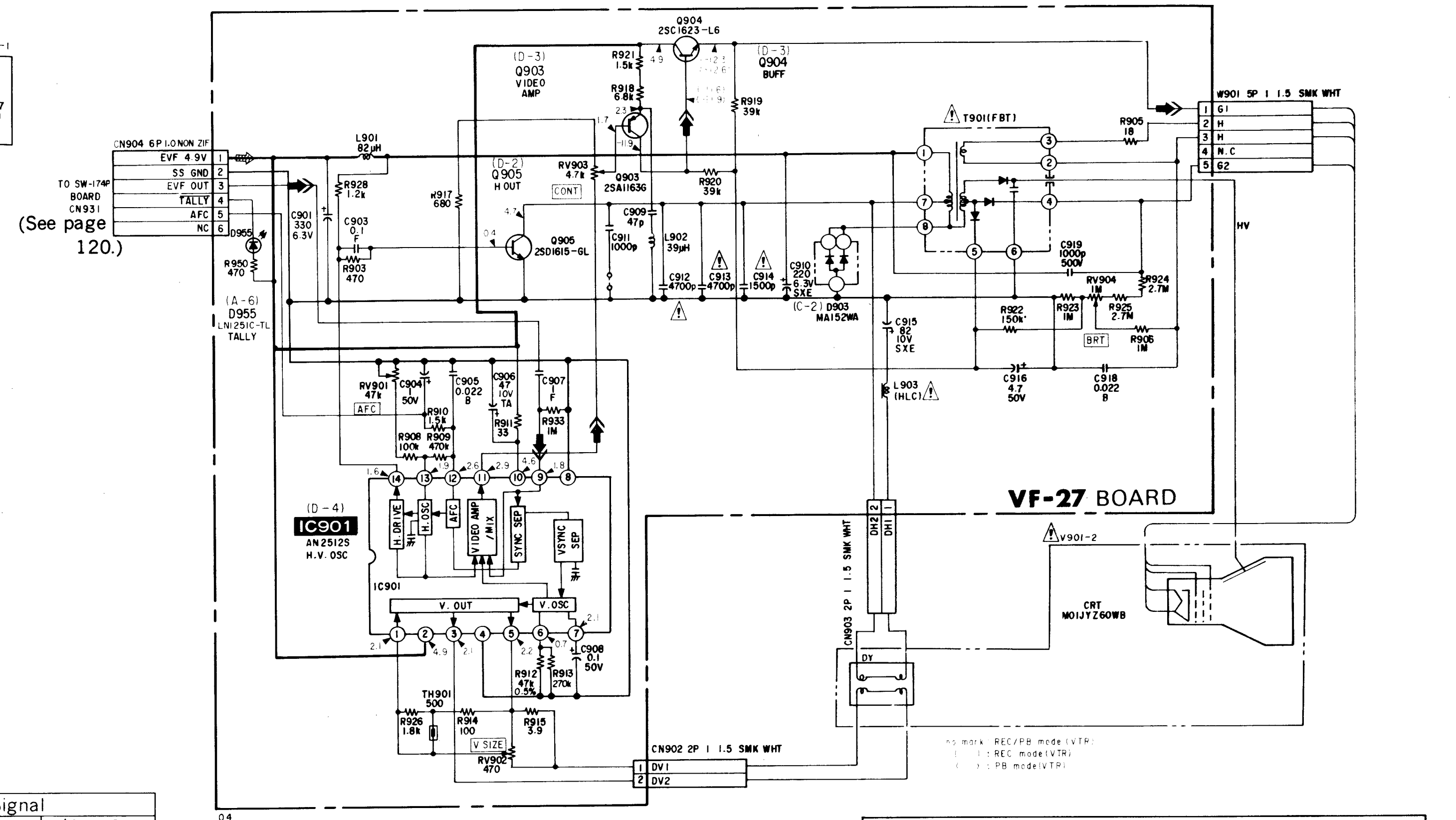
D670	8-719-404-46	MA110
D903	8-719-400-20	MA152WA
D955	8-719-404-19	LN1251C

< IC >

IC901	8-759-420-01	AN2512S (TYPE 1)
IC901	8-759-511-01	BA7147F (TYPE 2)

< TRANSISTOR >

Q903	8-729-106-68	2SD1615
Q904	8-729-216-31	2SA1163G


9
10
11
12
13
14
15
TO SW-174P BOARD CN931
(See page 120.)
CN904 6P NON ZIF
EVF 4.9V
SS GND
EVF OUT
TALLY
AFC
NC
Q903 2SA1163G VIDEO AMP
Q904 2SC1623-L6 BUFF
Q905 2SD1615-6L H OUT
T901 (FBT)
W901 5P I 1.5 SMK WHT
G1
H
H
N.C
G2
HV
IC901 AN2512S H.V. OSC
H.DRIVE
H.OSC
AFC
VIDEO AMP /MIX
SYNC SEP
VSYNC SEP
V.OUT
V.OSC
D903 MA152WA
D955 LN1251C-TL TALLY
L903 (HLC)
VF-27 BOARD
V901-2
CRT M01JYZ60WB
CN903 2P I 1.5 SMK WHT
CN902 2P I 1.5 SMK WHT
DV1
DV2
DY
V SIZE
RV902 470
BRT
CONT
AFC
04
no mark: REC/PB mode (VTR)
[ ]: REC mode (VTR)
( ): PB mode (VTR)

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

< DIODE >

D903	8-719-400-20	MA152WA
D955	8-719-404-19	LN1251C

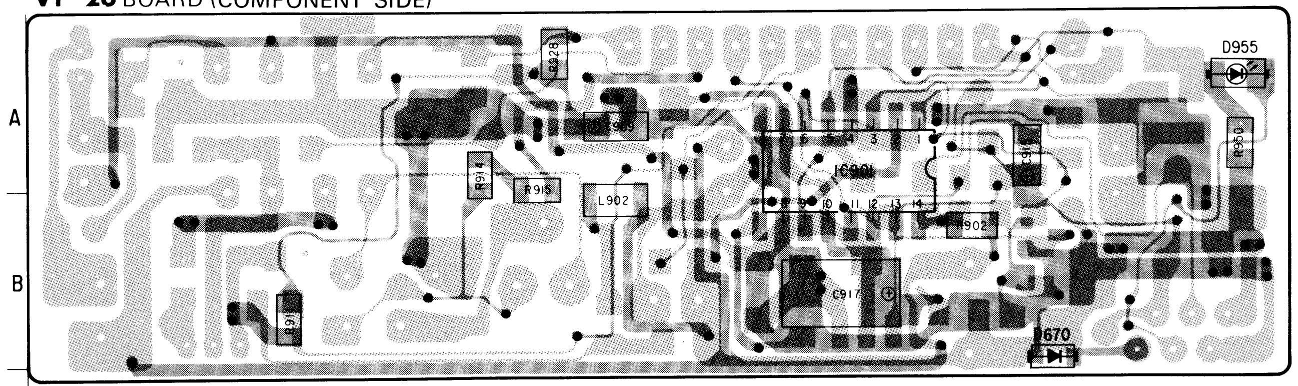
< IC >

IC901	8-759-420-01	AN2512S

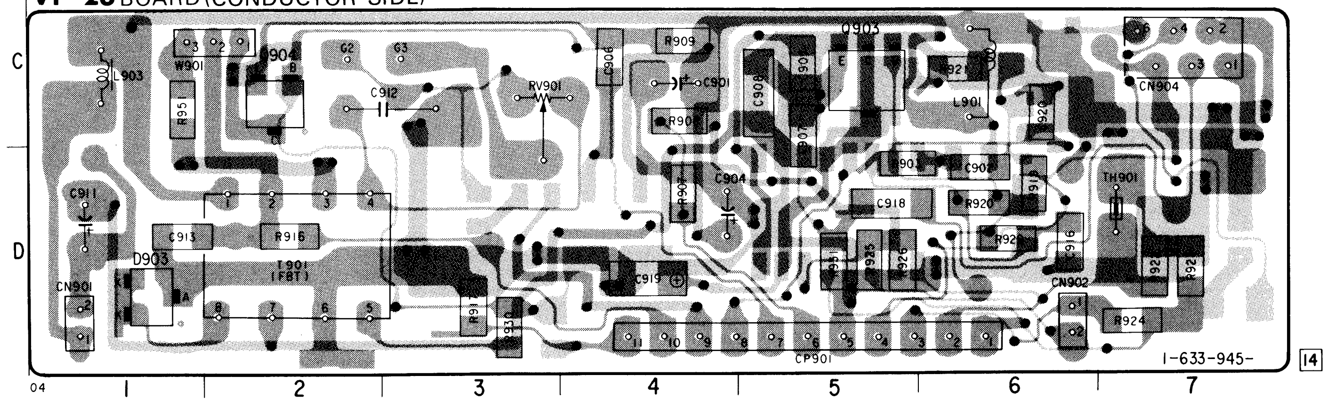
< TRANSISTOR >

Q903	8-729-216-31	2SA1163
Q904	8-729-100-66	2SC1623
Q905	8-729-106-68	2SD1615

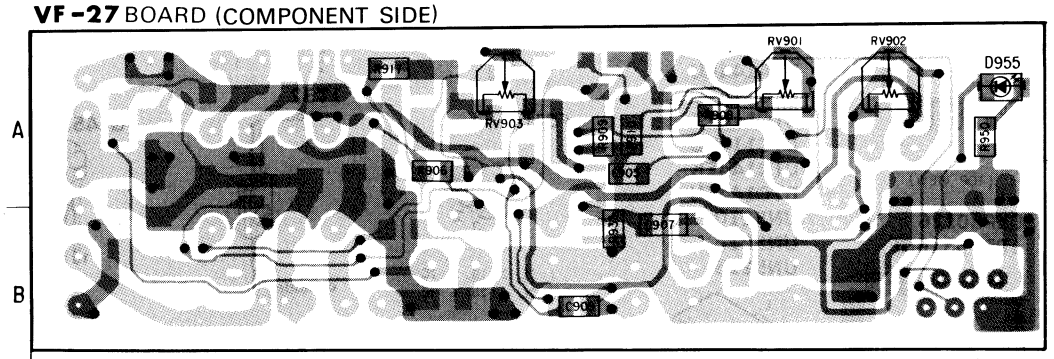
VF-26 BOARD (COMPONENT SIDE)


A
B
D955
R928
R909
R914
R915
L902
IC901
R902
C917
R900
R91
D670

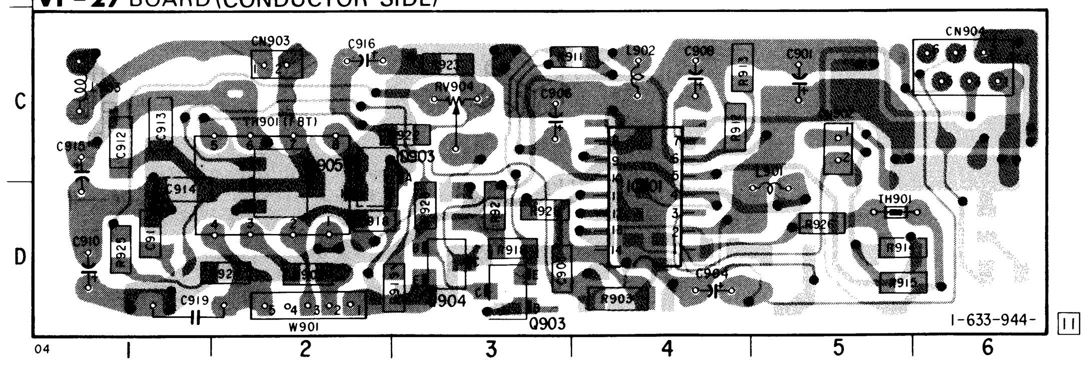
VF-26 BOARD (CONDUCTOR SIDE)


C
D
W901
Q904
L903
R951
C912
RV901
R909
R906
D903
L901
CN904
C911
C913
R916
T901 (FBT)
D903
CN901
C904
C918
C919
R920
TH901
CN902
R924
CP901
1-633-945-
14
04
1
2
3
4
5
6
7

VF-27 BOARD (COMPONENT SIDE)

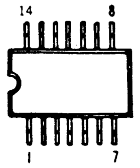

A
B
RV901
RV902
D955
RV903
R919
C906
C907
C905
R950

VF-27 BOARD (CONDUCTOR SIDE)


C
D
CN903
C916
CN904
RV904
T901 (FBT)
C912
C913
C914
C910
L902
C908
C901
C906
IC901
TH901
C919
W901
Q904
Q903
Q905
R903
1-633-944-
11
04
1
2
3
4
5
6

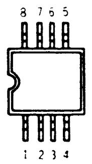
4-3. SEMICONDUCTORS

AN2512S
BA7147F
CXA8010M
LM324D
TL1596CDSB
XRU4011BF
XRU4066BF



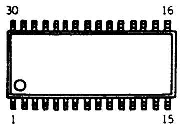
(TOP VIEW)

AK93C46F
BR93CS46F
HA118070FP
LA7293M
LM358D
LM393D
NJM2233AM
NJM2235M
RC3414M
μPC393G2



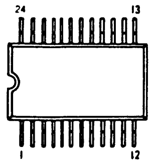
(TOP VIEW)

CXA1127M
CXA8006M



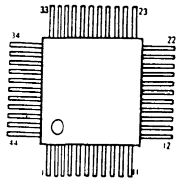
(Top view)

CXA1203N

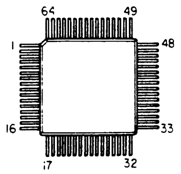


(TOP VIEW)

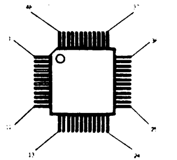
CXA1204Q


33
23
34
22
44
12
1
11

CXA1207R
MC68HC11E9

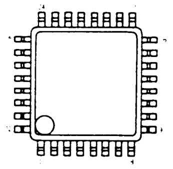

64
49
1
48
16
33
17
32

CXA1208R
CXA1392R
CXA1488R
MB3783PFV
MB673198U



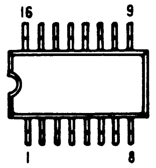
(TOP VIEW)

CXA1516Q
CXD1159Q



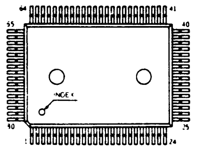
MARKING SIDE VIEW

CXA1448N
CXL1506M
MC14028BF
SN74HC4040NS



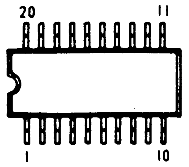
(TOP VIEW)

CXP80116
μPD75316GF


64
41
65
40
80
25
1
24
INDEX

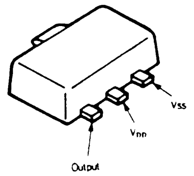
MARKING SIDE VIEW

MB88341PFV
MPC1737M
M62352GP
μPD6451G
μPD7564G-540

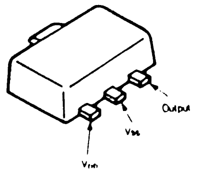


(TOP VIEW)

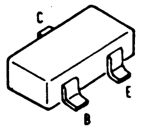
S-8054ALB-LM-S


Vss
VDD
Output

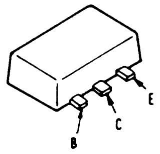
S-81250HG-RD-S


Output
Vss
VDD

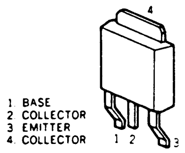
2SA1163
2SA1576-R
2SB624-BV345
2SC1623
2SC2223
2SC3395
2SC4081-R
2SC4176
2SD1819A
DTA144EU
DTC114EU
DTC114TK
DTC114TU
DTC144EK
DTC144EU
UN5210
UN5212
UN5215



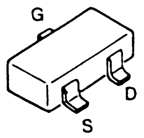
2SB1115A
2SB1121
2SB798-DL
2SD1615



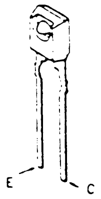
2SB1202FA


4
1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR
1
2
3

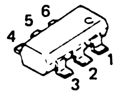
2SK1332-3
2SK300
2SK94



EE-109

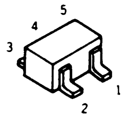


FC101

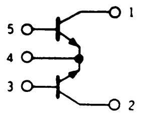


1 : 1E, 2 : 1B, 3 : 2C,
4 : 2E, 5 : 2B, 6 : 1C

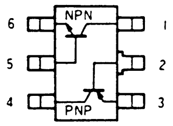
FMA2
FMG2



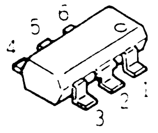
1 Tr1 :Collector 1
2 Tr2 :Collector 2
3 Tr2 :Base 2
4 Tr1, 2 :Emitter
5 Tr1 :Base 1



XN4601

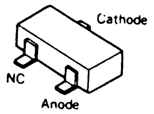

6
5
4
NPN
PNP
1
2
3

XN6213
XN6215
XN6401
XN6501

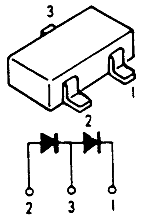


1: 1C, 2: 1B, 3: 2C,
4: 2B, 5: 2E, 6: 1E

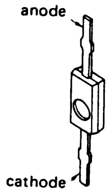
1SS196
SB10-05PCP


Cathode
NC
Anode

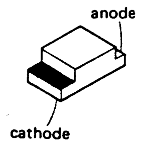
1SS226



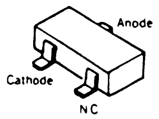
1T32


anode
cathode

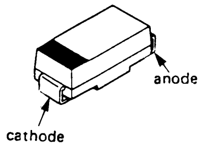
CL-150R-CD


anode
cathode

DAN202U

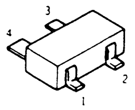

Anode
Cathode
NC

DTZ5.1
DTZ12
MA110
MA728
MA8051-M

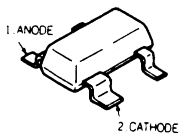

anode
cathode

DWA010
MA151A

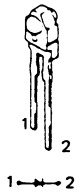
1. cathode
2. cathode
3. anode
4. anode



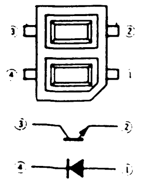
GL1HD51


1. ANODE
2. CATHODE

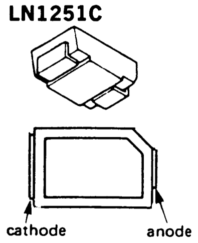
GL452S



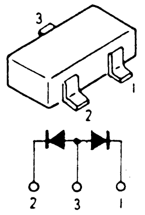
GP2S09-B
TLP907



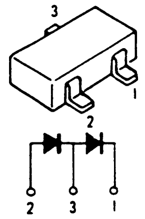
LN1251C


cathode
anode

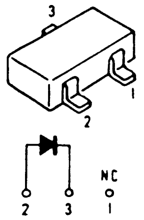
MA141WA
MA152WA



MA143



MA151K
SB05-05CP



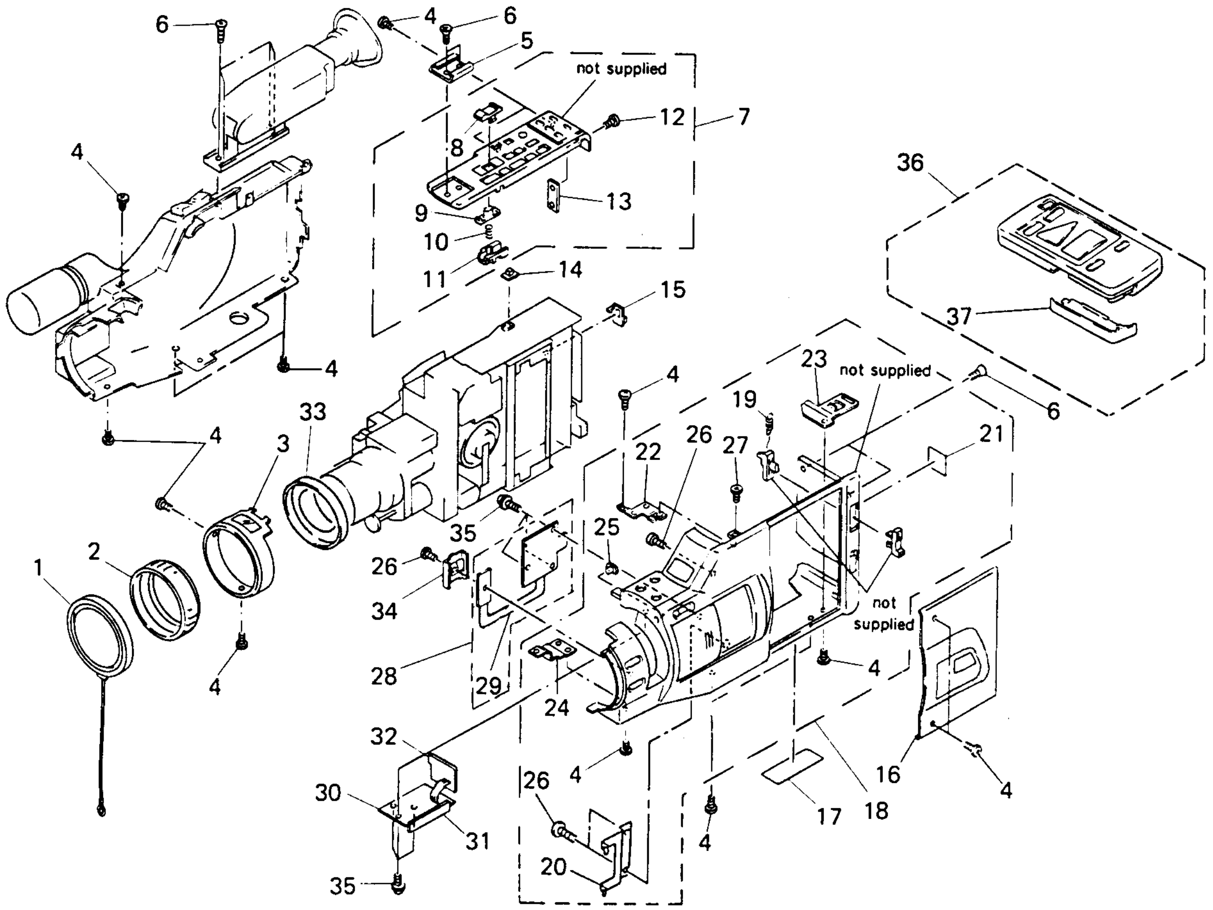
SECTION 5
EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE)...(RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Hardware(# mark) list is given in the last of this parts list.

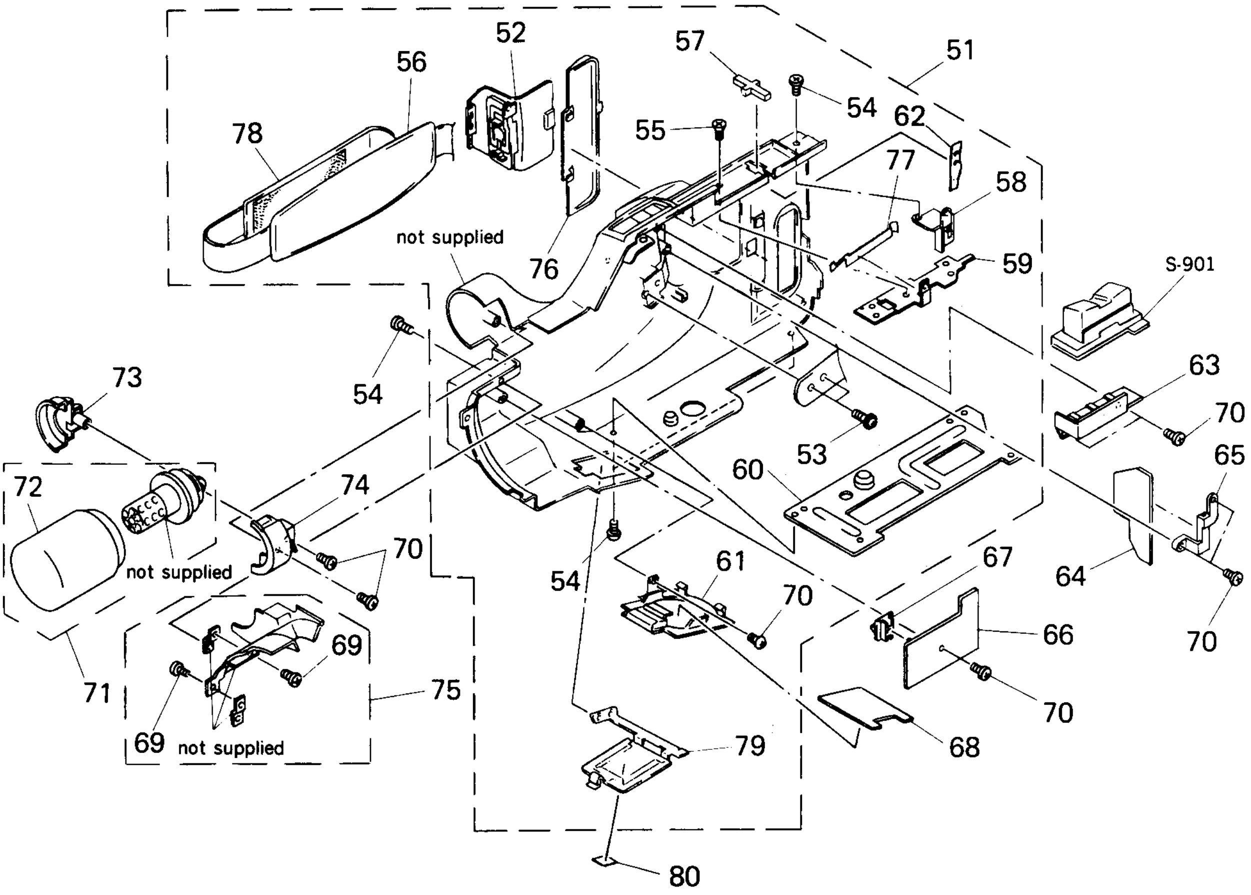
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

5-1. CABINET (R) AND VTR PANEL (L) ASSEMBLIES



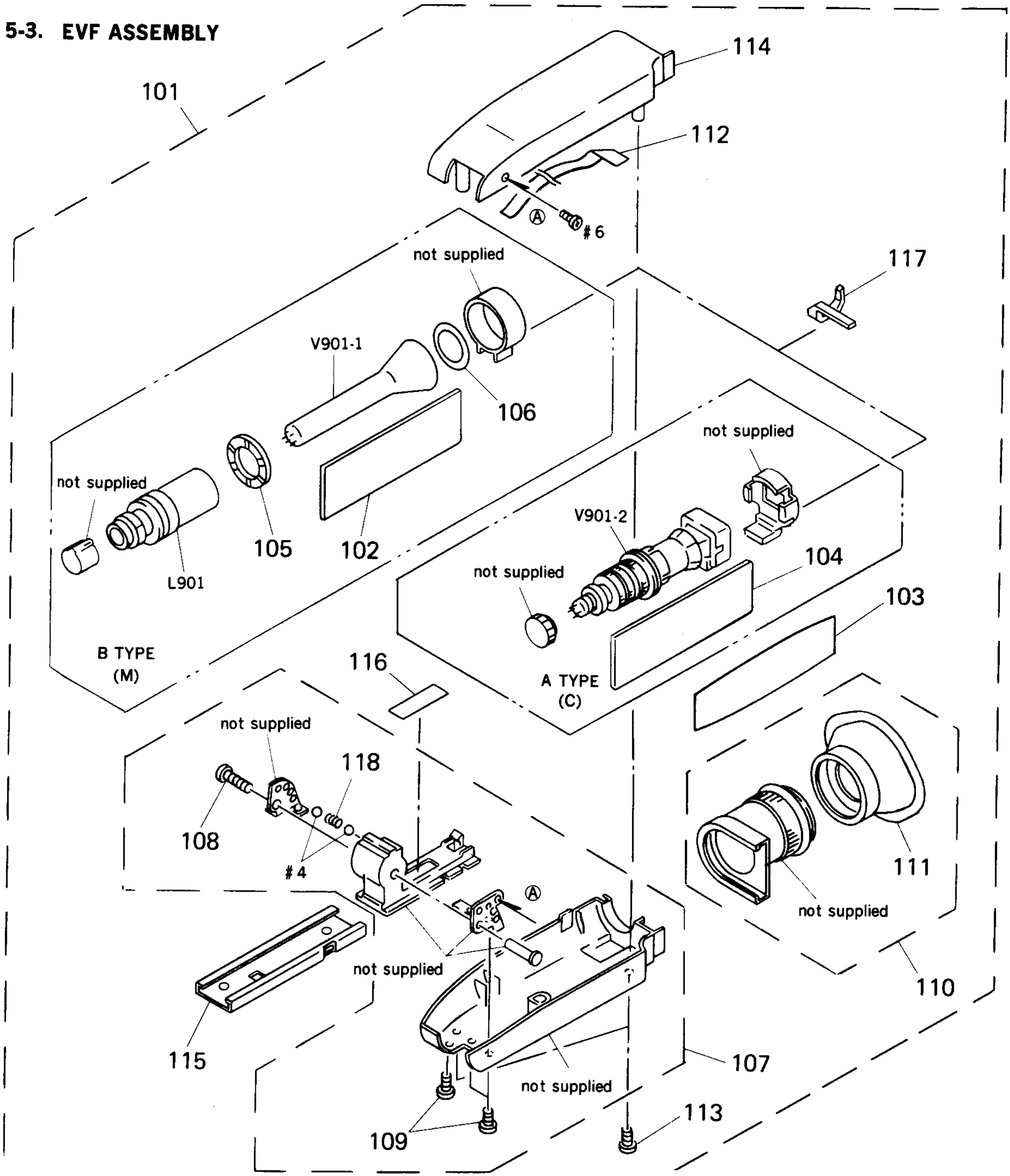
Ref. No.	Part No.	Description	Remark
1	A-7090-806-A	CAP ASSY, HOOD	
2	3-728-269-01	HOOD	
3	X-3940-381-1	HOOP ASSY, LENS	
4	3-719-381-01	SCREW (M2X4)	
5	3-724-511-01	SHOE, ACCESSORY	
6	3-719-831-21	SCREW (M2X4)	
7	X-3940-379-1	PANEL (L) ASSY, VTR (AEP/UK)	
	X-3940-816-1	PANEL (L) ASSY, VTR (Australian)	
8	3-744-723-01	BUTTON (10), POWER	
9	* 3-718-257-11	BUTTON, PUSH, POWER	
10	3-303-973-00	SPRING, COMPRESSION	
11	3-744-815-01	PLATE, BLIND, POWER	
12	3-719-381-31	SCREW (M2X3)	
13	3-941-713-01	JOINT (60), RV	
14	3-941-708-11	BUTTON (60), EDIT	
15	3-744-875-23	KNOB, REMOTE	
16	X-3940-380-1	LID (L) ASSY, CASSETTE	
17	* 3-943-030-01	LABEL, MODEL NUMBER (UK) (UK/Australian)	
	* 3-941-748-01	LABEL, MODEL NUMBER (AE) (AEP)	
18	X-3940-378-1	CABINET (R) ASSY	
19	3-674-402-00	SPRING, TENSION	
20	3-744-871-01	SPRING, LOCK	
21	* 3-719-683-01	LABEL, BATTERY FITTING	
22	3-744-810-01	RETAINER, SHOE	
23	3-744-811-01	SHEET METAL (LOWER), STRAP	
24	3-744-821-01	JOINT, L/R	
25	3-744-847-01	GUIDE	
26	3-713-790-21	SCREW (M2X6), TAPPING, P3	
27	3-744-720-11	SCREW (M2X3)	
28	* A-7071-383-A	CK-ZK (PA) BOARD, COMPLETE	
29	1-633-985-11	FP-298 FLEXIBLE BOARD	
30	* A-7062-687-A	DK-11P BOARD, COMPLETE	
31	* A-7071-382-A	ED-30P BOARD, COMPLETE	
32	* A-7062-685-A	RM-47P BOARD, COMPLETE	
33	3-744-839-01	RING, CHANGE	
34	3-744-812-01	SHEET METAL, ZK	
35	3-669-480-21	+ PTPWH 2	
36	1-465-720-11	REMOTE COMMANDER (RMT-506)	
37	3-942-755-01	COVER, BATTERY	

5-2. CABINET (L) ASSEMBLY


52
56
57
51
78
54
62
55
77
58
not supplied
76
59
S-901
73
54
63
70
65
53
60
72
74
70
61
67
not supplied
54
70
64
69
66
70
71
75
70
69
not supplied
79
68
80

Ref. No.	Part No.	Description	Remark
51	A-7081-529-A	CABINET (L) BLOCK ASSY (AEP/UK)	
	A-7081-677-A	CABINET (L) BLOCK ASSY (Australian)	
52	X-3744-855-1	KNOB ASSY, SP	
53	3-669-480-21	+ PTPWH 2	
54	3-744-720-11	SCREW (M2X3)	
55	3-719-381-01	SCREW (M2X4)	
56	3-724-591-01	PAD, GRIP	
57	3-744-709-01	LOCK, SLIDE	
58	3-744-804-01	SHEET METAL (UPPER), STRAP	
59	X-3744-828-1	RETAINER ASSY, EVF	
60	X-3940-613-1	METAL ASSY, SHEET, TRIPOD	
61	3-744-841-01	HOLDER, LI PC BOARD	
62	3-744-872-01	SPRING, CN	
63	3-744-805-01	BUTTON (BASE), ZOOM	
64	* A-7071-387-A	SW-174P BOARD, COMPLETE	
65	3-744-808-01	RETAINER, SW	
66	* A-7062-688-A	MC-76P BOARD, COMPLETE	
67	3-744-807-31	BUTTON, MICROPHONE	
68	* A-7071-386-A	LI-35P BOARD, COMPLETE	
69	3-744-720-11	SCREW (M2X3)	
70	3-713-790-21	SCREW (M2X6), TAPPING, P3	
71	1-542-125-21	MICROPHONE (C-2027)	
72	3-707-650-11	SCREEN, WIND	
73	3-744-833-21	HOLDER, MICROPHONE	
74	3-744-834-21	HOUSING, MICROPHONE	
75	X-3940-432-1	COVER ASSY, LENS	
76	3-744-874-91	LID, CONNECTOR	
77	3-744-876-01	SPRING, EVF LOCK	
78	3-719-323-01	BELT, GRIP	
79	3-744-840-21	LID, BATTERY CASE	
80	* 3-704-235-01	LABEL, CAUTION (UK)	
S901	1-572-286-31	SWITCH, PUSH (ZOOM)	

5-3. EVF ASSEMBLY

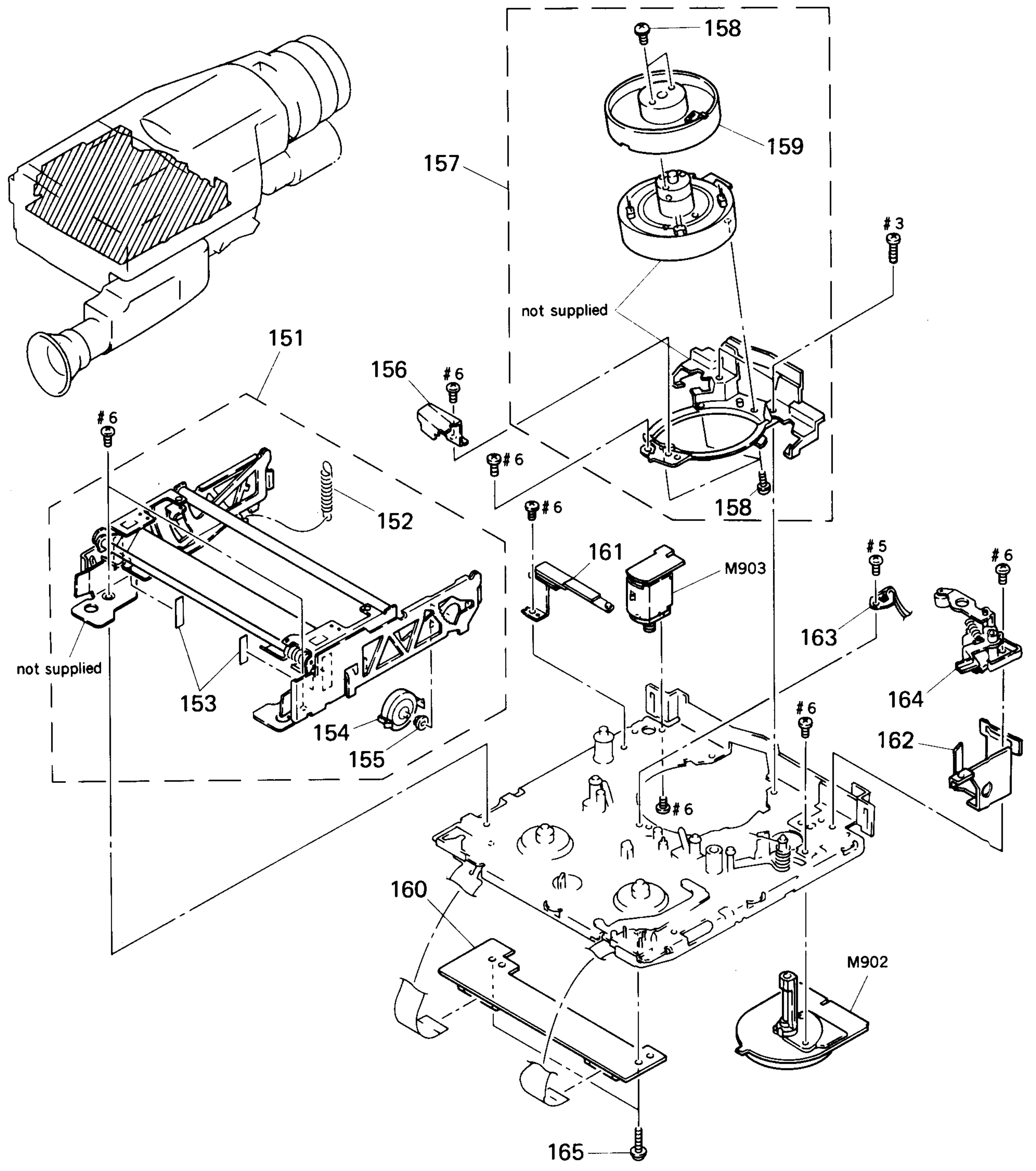

101
114
112
Ⓐ
#6
117
not supplied
V901-1
106
not supplied
105
102
L901
not supplied
V901-2
104
not supplied
103
B TYPE
(M)
116
A TYPE
(C)
not supplied
118
108
#4
Ⓐ
111
not supplied
110
not supplied
115
107
not supplied
113
109

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.		Part No.	Description	Remark
101		A-7019-235-A	EVF (M) ASSY (B TYPE)	
		A-7019-237-A	EVF (C) ASSY (A TYPE)	
102	*	A-7062-278-A	VF-26 BOARD, COMPLETE (B TYPE)	
103		3-744-775-01	INSULATOR, VF	
104	*	A-7062-279-A	VF-27 BOARD, COMPLETE (A TYPE)	
105		3-724-549-01	LOCK, CRT (B TYPE)	
106		3-724-570-01	RING, CRT FIXED (B TYPE)	
107		X-3744-859-1	CASE ASSY, VF (LOWER)	
108		3-732-012-11	SCREW (M2X5)	
109		3-744-720-11	SCREW (M2X3)	
110		X-3744-858-1	EYE PIECE BLOCK ASSY	
111		3-733-922-01	EYE CUP	

Ref. No.		Part No.	Description	Remark
112		1-634-011-11	FP-264 FLEXIBLE BOARD	
113		3-713-790-31	SCREW (M2X8), TAPPING, P3	
114		3-744-705-21	CASE, VF (UPPER)	
115		3-744-712-01	SHOE, VF	
116		3-744-716-01	COVER, FL	
117		3-744-722-01	GUIDE, VF TALLY	
118		3-302-492-00	SPRING, COMPRESSION	
L901	⚠·	1-451-310-21	DEFLECTION YOKE (B/W) (B TYPE)	
V901-1	⚠·	1-546-085-11	CATHODE-RAY TUBE, B/W (M01KGG007WB) (B TYPE)	
V901-2	⚠·	1-452-482-11	CRT ASSY (M91JYZ60WB) (A TYPE)	

5-4. MECHANICAL DECK ASSEMBLY (1)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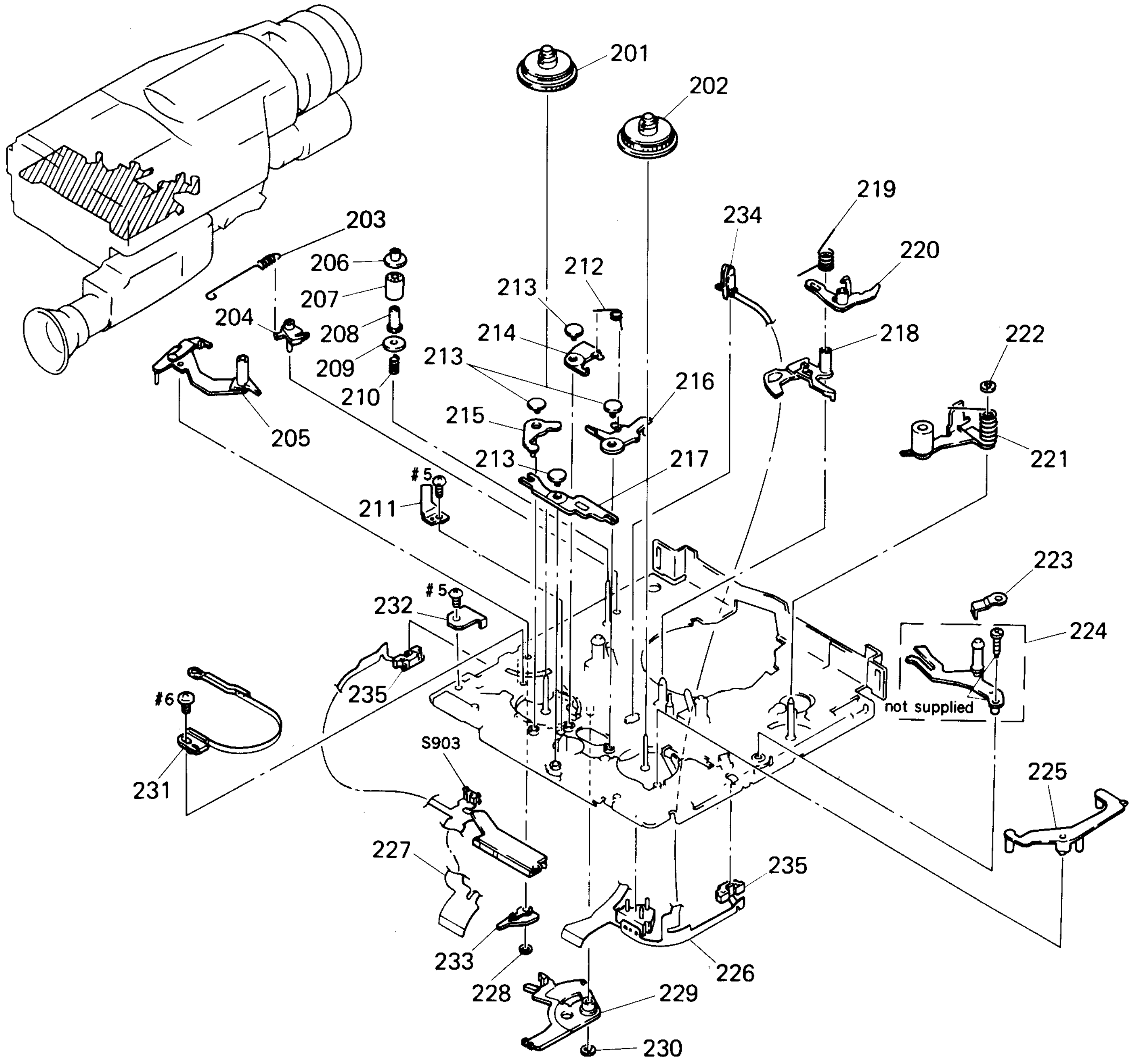
Ref. No.	Part No.	Description	Remark
151	X-3728-874-1	CASSETTE COMPARTMENT ASSY (N)	
152	3-728-825-03	SPRING, TENSION	
153	* 3-728-829-01	TAPE	
154	3-728-867-02	DAMPER, OIL	
155	3-728-828-02	GEAR, DAMPER	
156	3-728-868-01	GUARD, GUIDE	
157	A-7048-405-A	DRUM ASSY (DGU-64A-R)	
158	3-686-493-01	SCREW (M2X5), P1	
159	A-7049-343-A	DRUM ASSY, ROTARY (UPPER) (DGR-64-R)	
160	* A-7071-380-A	CC-61P BOARD, COMPLETE	
161	X-3728-864-1	GROUND ASSY, SHAFT	
162	3-744-114-01	BASE (RP)	
163	1-808-505-12	SENSOR (DEW)	
164	A-7040-205-A	ROLLER BLOCK ASSY (RP), HC	
165	3-713-790-01	SCREW (M2X5), TAPPING, P3	
M902	8-835-331-01	MOTOR, DC U-22A (CAPSTAN)	
M903	A-7040-208-A	MOTOR ASSY, THREADING (LOADING	

5-5. MECHANICAL DECK ASSEMBLY (2)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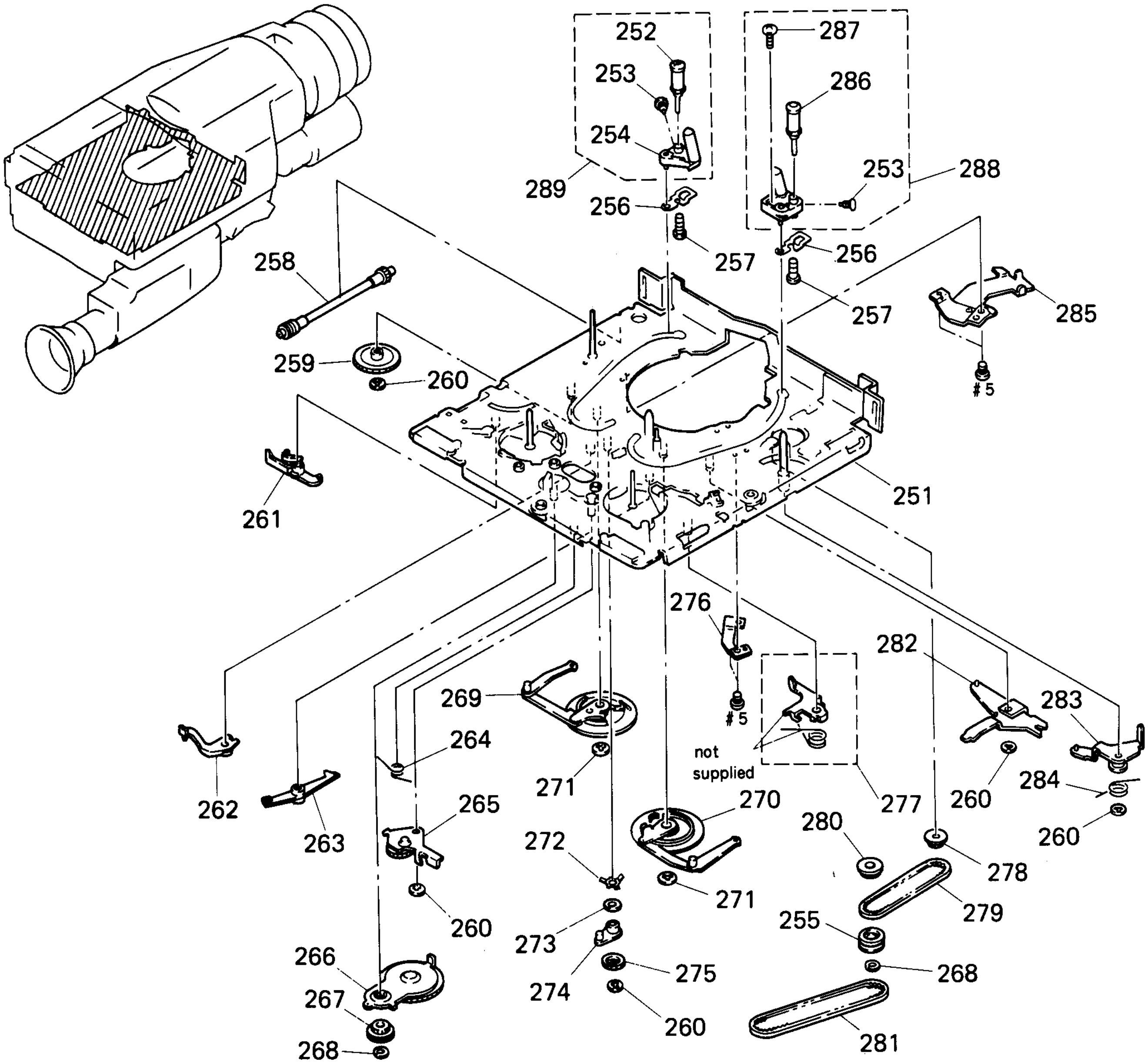
Ref. No.	Part No.	Description	Remark
201	X-3728-851-1	TABLE ASSY, REEL, S	
202	X-3728-855-1	TABLE ASSY, REEL, T	
203	3-736-414-01	SPRING, TENSION	
204	3-728-855-03	ARM, ADJUSTMENT	
205	X-3728-867-1	ARM ASSY (S), TENSION REGULATOR	
206	3-726-884-01	FLANGE, UPPER, TG2	
207	3-726-883-01	ROLLER, TG2	
208	3-726-885-01	SLEEVE, TG2	
209	3-726-882-02	FLANGE, LOWER, TG2	
210	3-726-886-01	SPRING, COMPRESSION	
211	3-726-848-01	RETAINER, TL	
212	3-726-866-01	SPRING (ST), TORSION	
213	3-726-858-01	PIN, SHAFT RETAINER	
214	3-728-849-01	BRAKE, S	
215	3-726-852-01	BRAKE, LB	
216	3-728-850-01	BRAKE, T	
217	3-726-853-01	LEVER, LB	
218	3-728-875-01	STOPPER, RK	
219	3-726-864-01	SPRING (RK), TORSION	
220	3-728-852-02	ARM, RK STOPPER	
221	A-7040-219-A	ARM BLOCK ASSY, PINCH	
222	3-669-465-00	WASHER (1.5), STOPPER	
223	3-728-808-01	SPRING, LEAF	
224	X-3728-869-1	ARM ASSY, TG7	
225	3-728-848-01	ARM, LB RELEASE	
226	1-628-061-12	FP-90 FLEXIBLE BOARD	
227	1-628-060-12	FP-89 FLEXIBLE BOARD	
228	3-321-393-11	WASHER, STOPPER	
229	X-3728-863-1	LEVER ASSY, SW	
230	3-726-829-01	WASHER, STOPPER	
231	X-3728-859-1	BAND ASSY, TENSION REGULATOR	
232	3-730-125-01	RETAINER, SW	
233	X-3728-857-1	STOPPER ASSY, TENSION REGULATOR	
234	3-728-837-01	HOLDER, LED	
235	3-728-869-02	HOLDER, SENSOR	
S903	1-571-099-11	SWITCH (CASSETTE DOWN)	

5-6. MECHANICAL DECK ASSEMBLY (3)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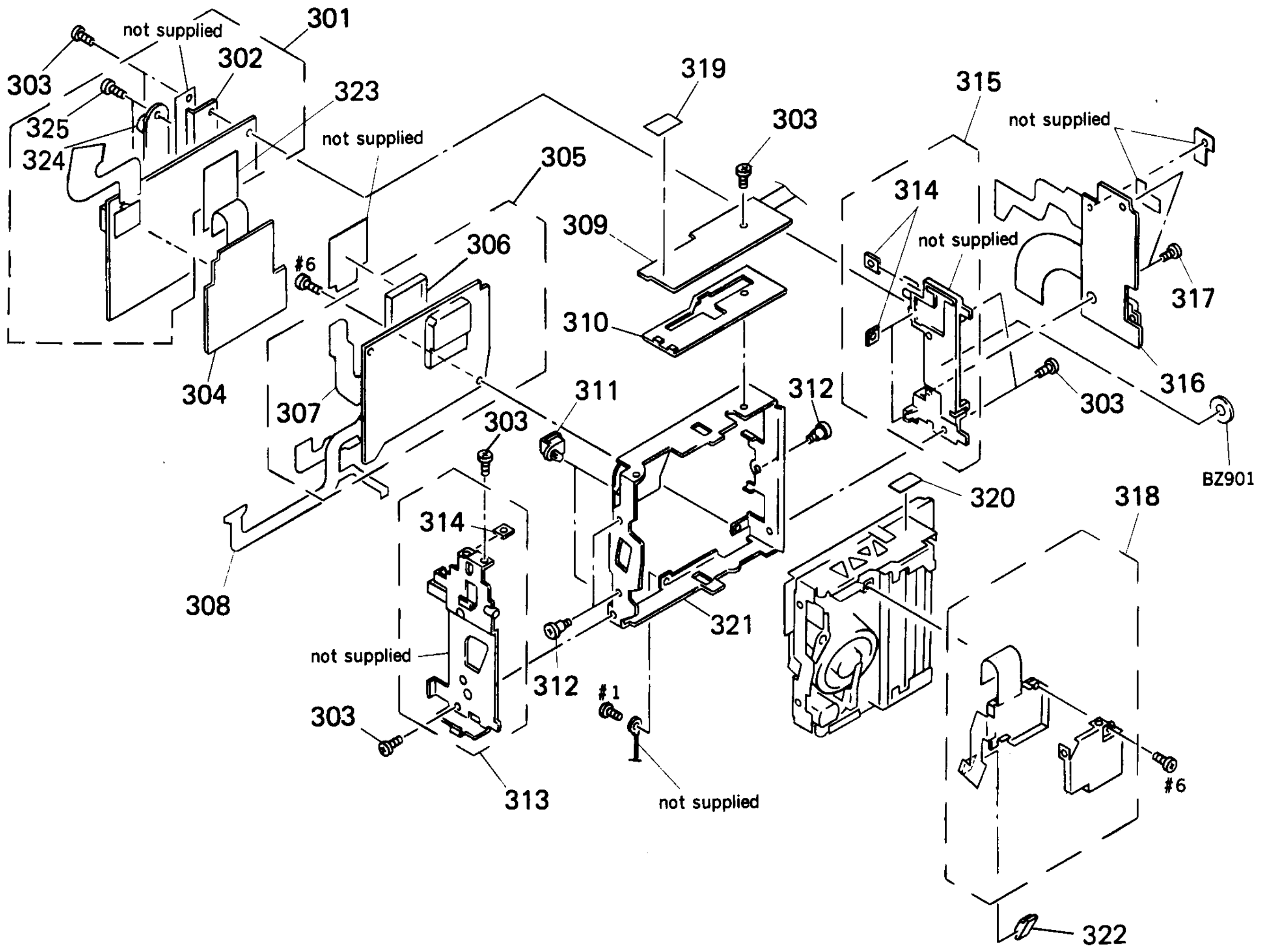
Ref. No.	Part No.	Description	Remark
251	X-3728-862-1	CHASSIS ASSY, MECHANICAL	
252	X-3726-820-1	ROLLER ASSY (U), GUIDE	
253	3-726-822-01	SCREW (M1.4X2) (STEP), HEAD	
254	X-3726-818-1	COASTER (LEFT) ASSY	
255	3-741-196-01	PULLEY (LOWER), BELT MIDWAY	
256	3-736-485-01	SPRING, LEAF, COSTER	
257	3-726-830-01	SCREW (M1.4X4) (THREE LOCK)	
258	X-3728-868-1	WORM ASSY	
259	3-744-109-01	GEAR, WHEEL	
260	3-726-829-01	WASHER, STOPPER	
261	3-728-842-01	LEVER, EJECT	
262	3-728-851-01	BRAKE, UL	
263	3-726-854-01	ARM, BRAKE RELEASE	
264	3-726-865-01	SPRING (LB), TORSION	
265	A-7040-225-A	GEAR BLOCK ASSY (N), LB	
266	X-3728-866-1	GEAR ASSY, RK	
267	X-3728-858-1	GEAR ASSY, RC	
268	3-321-393-11	WASHER, STOPPER	
269	X-3728-842-1	GEAR (LEFT) ASSY, DRIVE	
270	X-3728-843-1	GEAR (RIGHT) ASSY, DRIVE	
271	3-669-465-00	WASHER (1.5), STOPPER	
272	3-726-867-01	SPRING, LEAF	
273	3-701-436-21	WASHER, POLYEHTHYLENE	
274	3-726-857-03	ARM, UL	
275	3-726-856-04	GEAR, UL	
276	* 3-726-805-01	REINFORCEMENT (TT)	
277	X-3726-808-2	BRAKE ASSY, TS	
278	X-3726-805-1	GEAR ASSY, JOINT	
279	3-728-866-11	BELT (S), TIMING	
280	X-3726-813-1	PULLEY (UPPER) ASSY, MIDWAY	
281	3-741-197-01	BELT (L), TIMING	
282	X-3728-846-1	LEVER ASSY, THREADING	
283	X-3726-824-1	ARM ASSY, PINCH SUB	
284	3-726-895-01	SPRING	
285	X-3726-841-1	REINFORCEMENT (SS) ASSY	
286	X-3728-808-4	ROLLER ASSY (U) (PLATING), GUIDE	
287	3-736-473-01	SCREW (M2X0.25) (THREE LOCK)	
288	A-7040-217-A	COASTER (RIGHT) BLOCK ASSY (N1P)	
289	A-7040-128-A	COASTER (LEFT) BLOCK ASSY	

5-7. MAIN BOARDS ASSEMBLY



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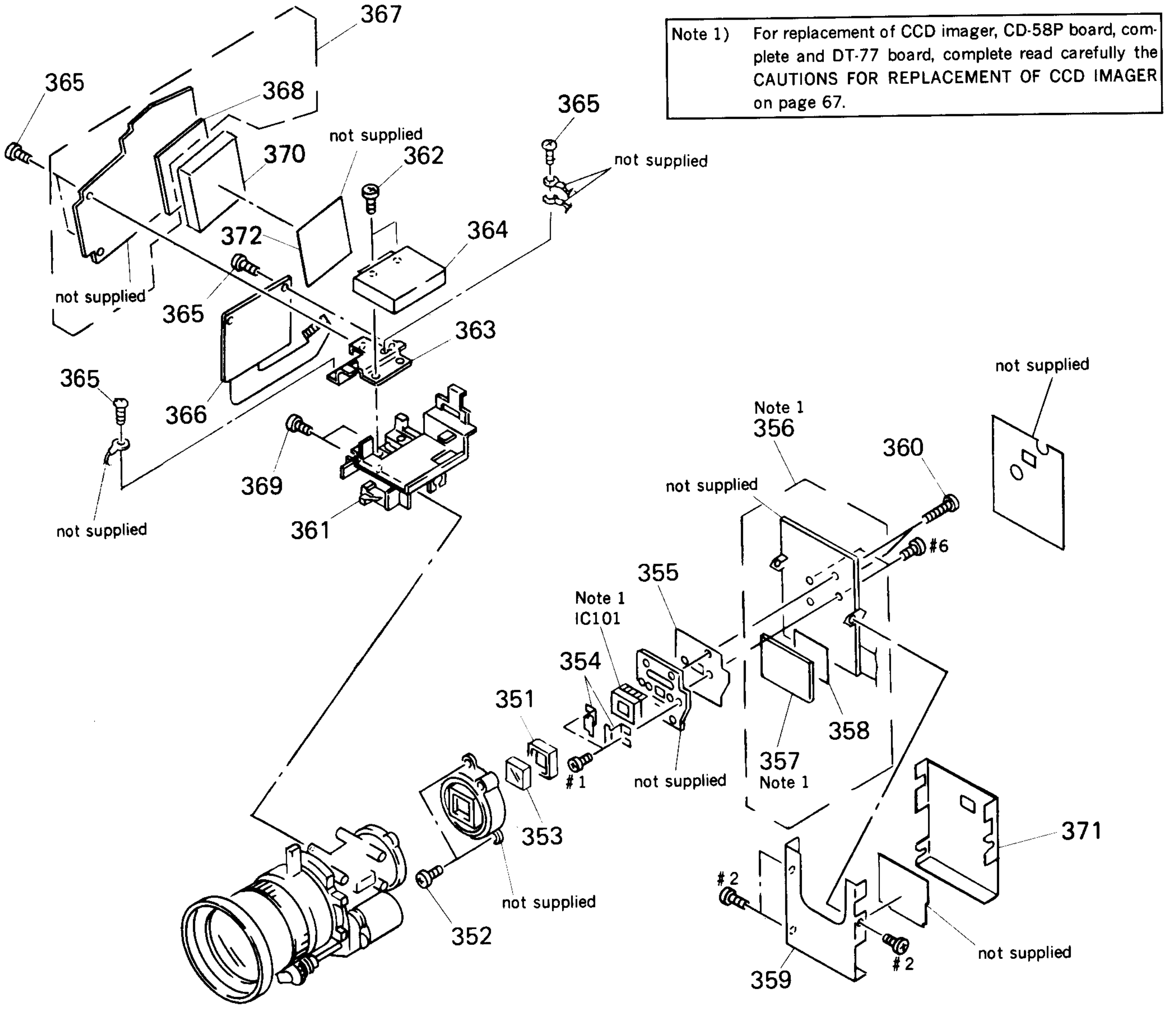
Ref.No.	Part No.	Description	Remark
301	* A-7062-683-A	VA-67P BOARD, COMPLETE (AEP/UK)	
	* A-7062-824-A	VA-67P BOARD, COMPLETE (Australian)	
302	X-3744-801-1	REINFORCEMENT ASSY, VA	
303	3-744-720-11	SCREW (M2X3)	
304	* A-7062-682-A	CT-38P BOARD, COMPLETE	
305	* A-7062-681-A	SS-136P BOARD, COMPLETE	
306	* X-3744-601-1	CASE ASSY (DD-B), SHIELD	
307	1-633-924-11	FP-248 FLEXIBLE BOARD	
308	1-633-922-11	FP-249 FLEXIBLE BOARD	
309	* A-7071-444-A	VK-14P BOARD, COMPLETE (Australian)	
309	* A-7071-381-A	VK-14P BOARD, COMPLETE (AEP/UK)	
310	X-3940-614-1	PLATE ASSY, BOTTOM, VTR	
311	3-744-609-01	HINGE (C), PC BOARD	
312	3-744-603-21	SCREW	
313	X-3744-805-1	HOLDER ASSY, MD	
314	3-718-233-01	NUT, PLATE	
315	X-3744-810-1	FRAME (R) ASSY, MD	
316	* A-7062-684-A	FU-100P BOARD, COMPLETE	
317	3-713-790-21	SCREW (M2X6), TAPPING, P3	
318	8-741-509-51	IC SBX1509-51(HIC RP-77 BOARD,COMPLETE)	
319	* 3-744-948-01	SHEET, ELECTROSTATIC, VK	
320	* 3-730-176-11	SHEET, MD	
321	X-3744-602-1	FRAME ASSY, MD	
322	1-569-347-11	CONNECTOR, FPC(TRANSLATION)13P	
323	* 3-744-890-01	PLATE, PROTECTION, FLEXIBLE	
324	1-537-142-21	TERMINAL BOARD	
325	3-719-695-01	SCREW (M1.7X3.5), SPECIAL HEAD	
BZ901	1-529-096-11	BUZZER, PIEZOELECTRIC	

5-8. CAMERA BLOCK ASSEMBLY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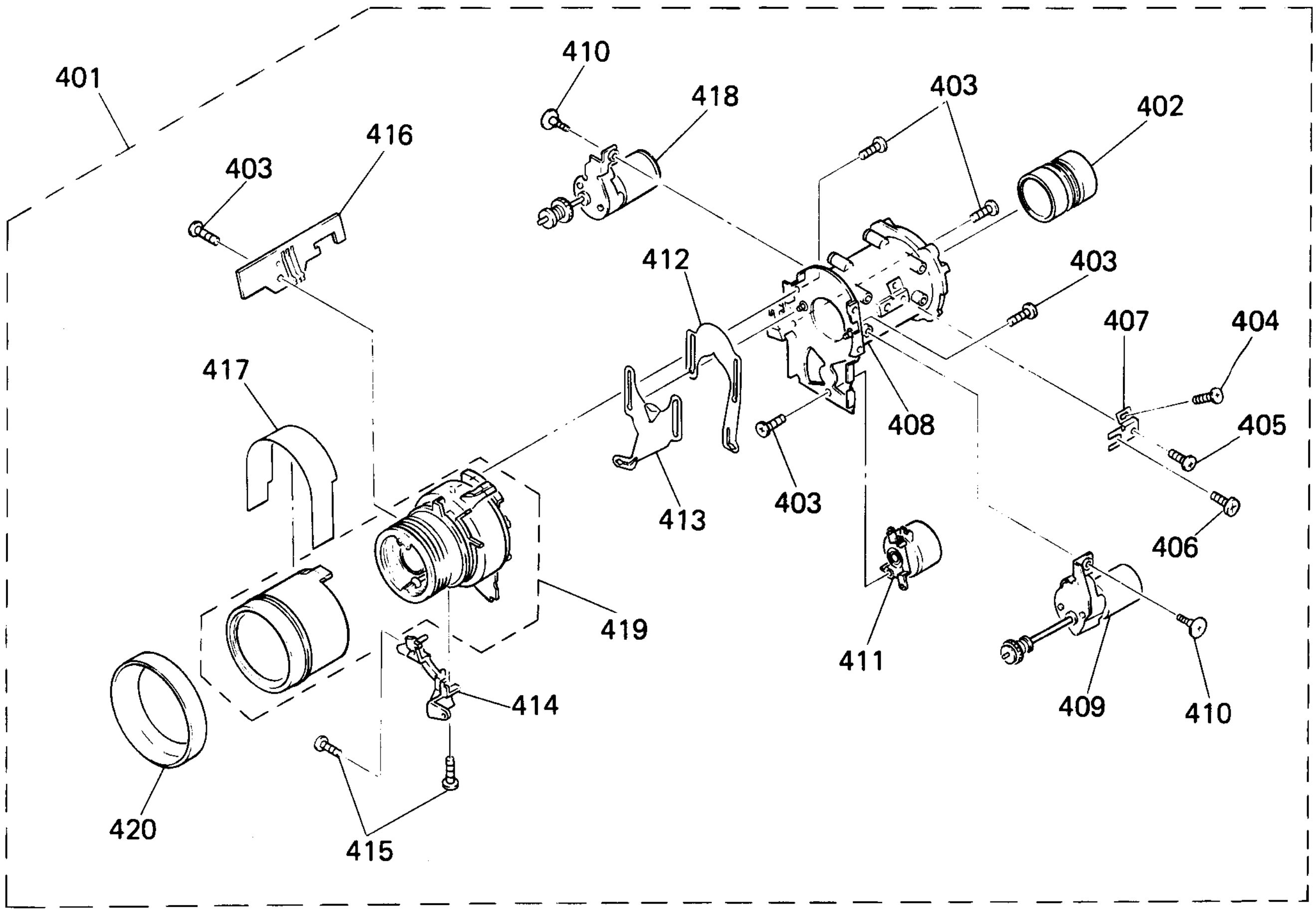
Note 1) For replacement of CCD imager, CD-58P board, complete and DT-77 board, complete read carefully the CAUTIONS FOR REPLACEMENT OF CCD IMAGER on page 67.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
351	* 3-725-177-01	RUBBER, SEAL	
352	3-738-519-11	SCREW (M2X3), +B	
353	1-547-357-12	FILTER BLOCK, OPTICAL	
354	* 3-725-175-01	STOPPER, CCD	
355	* 3-725-180-01	SHEET, INSULATING, CCD HOLDER	
356	* A-7062-679-A	CD-58P BOARD, COMPLETE (Note 1)	
357	A-7068-174-A	DT-77 BOARD, COMPLETE (HIC121) (Note 1)	
358	* X-3739-811-1	PLATE ASSY, SHIELD, CD	
359	* X-3744-702-1	CASE (MAIN) ASSY, SHIELD, C	
360	3-335-640-51	SCREW (M2X16)	
361	* X-3744-808-1	HOLDER ASSY, LENS	
362	3-713-790-21	SCREW (M2X6), TAPPING, P3	
363	* 3-744-818-01	PLATE, GROUND, CAMERA	
364	⚠· 1-466-230-21	CONVERTER UNIT, D/D	
365	3-719-381-01	SCREW (M2X4)	
366	* A-7062-680-A	AF-85P BOARD, COMPLETE	
367	* A-7062-678-A	VC-94P BOARD, COMPLETE	
368	A-7068-192-A	MX-10 BOARD, COMPLETE (HIC131)	
369	3-719-408-01	SCREW (B2), TAPPING, P3	
370	* 3-744-763-01	CASE, SHIELD, VC	
371	X-3744-763-1	LID, C SHIELD CASE	
372	* 3-744-892-01	INSULATOR, VC	
IC101	8-752-606-04	IC ICX027CK-2 (CCD IMAGER) (Note 1)	

5-9. ZOOM LENS ASSEMBLY (1) (VCL-8508XE)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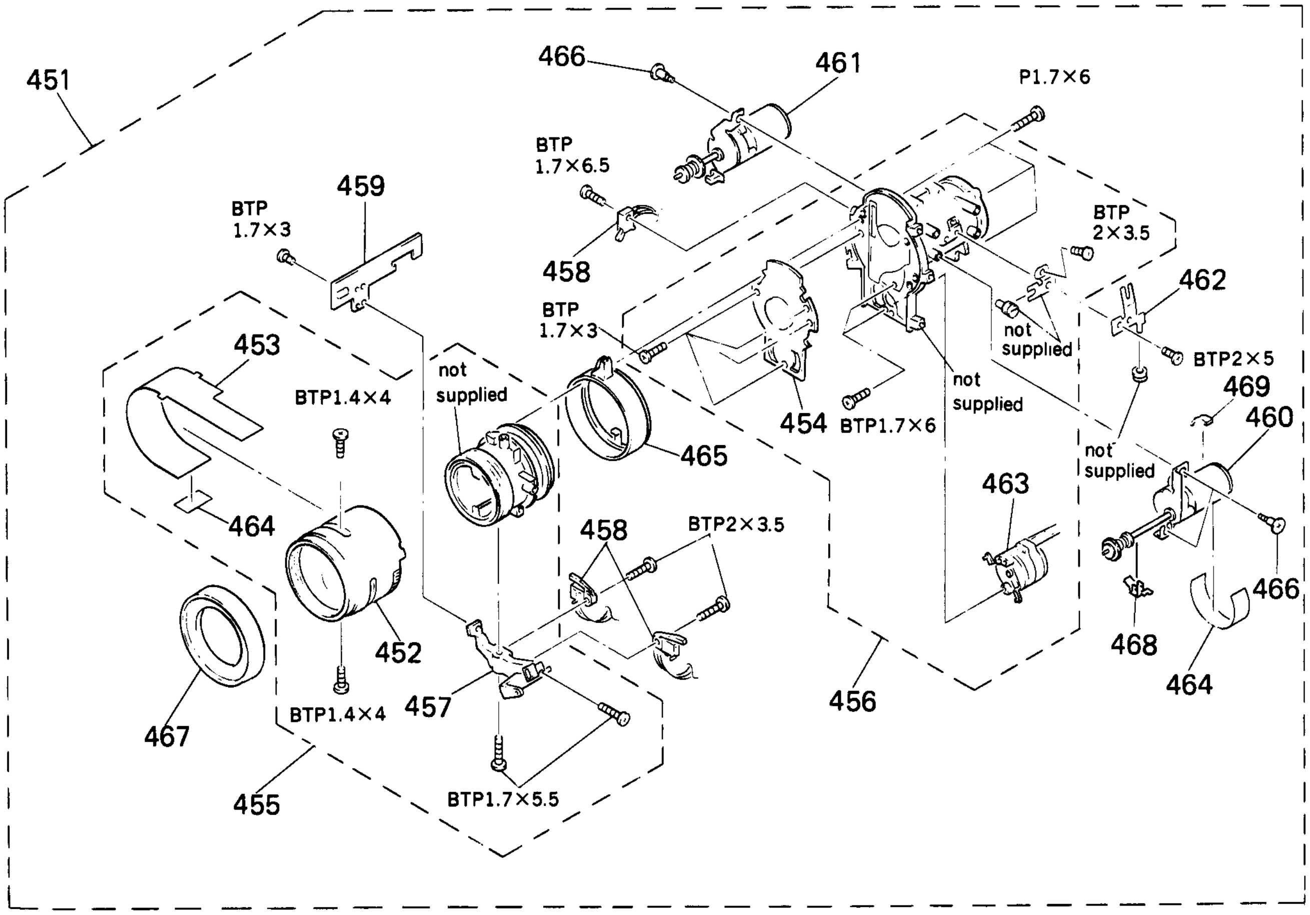
Ref.No.	Part No.	Description	Remark
401	1-547-422-11	LENS, ZOOM (VCL-8508XE)	
402	3-707-945-01	LENS ASSY, MASTER	
403	3-707-946-01	SCREW (M3X4.5)	
404	3-707-947-01	SCREW, MASTER LENS (M4X4)	
405	3-707-948-01	SCREW, TRACKING PLATE (M3.8X2.8)	
406	3-707-949-01	TOP	
407	3-707-950-01	PLATE, FIXED	
408	3-707-951-01	MIRROR TUBE, REAR	
409	3-707-952-01	MOTOR ASSY, AF	
410	3-707-953-01	SCREW, F.Z MOTOR (M6.3X6.1)	
411	3-707-954-01	METER ASSY, IRIS	
412	3-707-955-01	SHUTTLECOCK (A), IRIS	
413	3-707-956-01	SHUTTLECOCK (B), IRIS	
414	3-707-957-01	BRACKET	
415	3-707-958-01	SCREW, BRACKET (M3.5X5)	
416	3-707-959-01	CHASSIS, SENSOR	
417	3-707-961-01	SHEET, F	
418	3-707-962-01	MOTOR ASSY, PZ	
419	3-707-963-01	FZ ASSY	
420	3-744-839-01	RING, CHANGE	

5-10. ZOOM LENS ASSEMBLY (2)
(VCL-8508XF)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BTP1.7×6
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BTP1.4×4
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BTP1.7×5.5

Ref. No.	Part No.	Description	Remark
451	1-547-412-15	LENS, ZOOM (VCL-8508XF)	
452	3-707-965-01	RING ASSY (F)	
453	3-707-966-01	SHEET, (F) METER	
454	3-707-967-01	FRAME ASSY, 4 GROUP LENS	
455	3-707-968-02	MIRROR TUBE ASSY	
456	3-707-969-01	MIRROR TUBE ASSY, REAR	
457	3-707-970-02	BLACKET	
458	3-707-971-01	SW ASSY (Z)	
459	3-707-972-01	BOARD ASSY, SENSOR	
460	3-708-059-01	MOTOR ASSY, AE (2)	
461	3-707-974-01	MOTOR ASSY, PZ	
462	3-707-975-01	RETAINER, (F) MOTOR	
463	3-707-976-01	METER ASSY, IRIS	
464	3-707-977-01	TAPE, POLYESTER	
465	3-707-978-01	RING ASSY, ZOOM	
466	3-707-796-01	SCREW, MOTOR SET	
467	3-744-839-01	RING, CHANGE	
468	3-708-087-01	SPRING, (F) SHAFT RETAINER	
469	3-708-058-01	RUBBER	

SECTION 6
ELECTRICAL PARTS LIST

AF-85P

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- CAPACITORS
  uF: μF
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: μH
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD....

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref. No.	Part No.	Description			Remark
	* A-7062-680-A	AF-85P BOARD, COMPLETE			
		**********************			
		(Ref. No 1,000 Series)			
		< CAPACITOR >			
C801	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C802	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C803	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C804	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C805	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C806	1-162-948-11	CERAMIC CHIP	39PF	5%	50V
C807	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C808	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C809	1-162-948-11	CERAMIC CHIP	39PF	5%	50V
C810	1-164-218-11	CERAMIC CHIP	180PF	0.25PF	50V
C811	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C812	1-164-218-11	CERAMIC CHIP	180PF	0.25PF	50V
C814	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C815	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C816	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V
C817	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V
C818	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C820	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C821	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C822	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C823	1-162-948-11	CERAMIC CHIP	39PF	5%	50V
C824	1-162-956-11	CERAMIC CHIP	180PF	5%	50V
C825	1-162-950-11	CERAMIC CHIP	56PF	5%	50V
C826	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C827	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C828	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C829	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C830	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C831	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C832	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C833	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C834	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C835	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C836	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C837	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C838	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C839	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C840	1-164-634-11	CERAMIC CHIP	1uF		16V
C841	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C842	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C843	1-164-634-11	CERAMIC CHIP	1uF		16V
C844	1-164-634-11	CERAMIC CHIP	1uF		16V
C845	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C846	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C847	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C848	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C849	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C850	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C852	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C853	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C854	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C855	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
		< CONNECTOR >			
CN801	* 1-565-529-21	PIN, CONNECTOR (PC BOARD) 4P			
		< DIODE >			
D801	8-719-404-32	DIODE MA141WA			
D802	8-719-404-46	DIODE MA110			
D803	8-719-404-46	DIODE MA110			
D804	8-719-404-46	DIODE MA110			

Ref. No.	Part No.	Description				Remark
		< IC >				
IC801	8-759-946-00	IC	MB88341PFV			
IC802	8-759-998-98	IC	LM358D			
IC803	8-759-100-93	IC	uPC393G2			
IC804	8-759-509-29	IC	XRU4011BF			
IC805	8-759-509-29	IC	XRU4011BF			
IC806	8-759-926-98	IC	SN74HC4040NS			
IC807	8-752-055-56	IC	CXA1516Q			
IC808	8-759-998-96	IC	LM324D			
IC809	8-759-998-98	IC	LM358D			
		< COIL >				
L801	1-412-052-21	INDUCTOR CHIP	1uH			
L802	1-410-393-11	INDUCTOR CHIP	100uH			
L803	1-410-656-11	INDUCTOR CHIP	150uH			
L804	1-410-658-31	INDUCTOR CHIP	220uH			
L805	1-410-655-31	INDUCTOR CHIP	120uH			
L806	1-410-387-11	INDUCTOR CHIP	33uH			
		< TRANSISTOR >				
Q801	8-729-402-45	TRANSISTOR	UN5212			
Q802	8-729-143-13	TRANSISTOR	2SC4176-B34			
Q803	8-729-905-35	TRANSISTOR	2SC4081-R			
Q804	8-729-905-23	TRANSISTOR	2SA1576-R			
Q805	8-729-143-13	TRANSISTOR	2SC4176-B34			
Q806	8-729-402-78	TRANSISTOR	XN6401			
Q807	8-729-905-35	TRANSISTOR	2SC4081-R			
Q808	8-729-905-35	TRANSISTOR	2SC4081-R			
Q809	8-729-905-35	TRANSISTOR	2SC4081-R			
Q810	8-729-905-35	TRANSISTOR	2SC4081-R			
Q811	8-729-905-35	TRANSISTOR	2SC4081-R			
Q812	8-729-420-44	TRANSISTOR	UN5210			
Q814	8-729-420-44	TRANSISTOR	UN5210			
Q815	8-729-420-44	TRANSISTOR	UN5210			
		< RESISTOR >				
R801	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R802	1-218-298-11	METAL CHIP	2.2K	0.50%	1/16W	
R803	1-218-313-11	METAL CHIP	560	0.50%	1/16W	
R804	1-216-629-11	METAL CHIP	120	0.5%	1/10W	
R805	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R806	1-218-298-11	METAL CHIP	2.2K	0.50%	1/16W	
R807	1-216-820-11	METAL CHIP	820	5%	1/16W	
R808	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R809	1-216-134-00	METAL CHIP	2.2	5%	1/8W	
R810	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R811	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R812	1-216-853-11	METAL CHIP	470K	5%	1/16W	

Ref. No.	Part No.	Description				Remark
R813	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R814	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R815	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R816	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R817	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R818	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R819	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R820	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R821	1-216-679-11	METAL CHIP	15K	0.5%	1/10W	
R822	1-216-675-11	METAL CHIP	10K	0.5%	1/10W	
R825	1-216-679-11	METAL CHIP	15K	0.5%	1/10W	
R826	1-216-675-11	METAL CHIP	10K	0.5%	1/10W	
R827	1-216-675-11	METAL CHIP	10K	0.5%	1/10W	
R828	1-216-809-11	METAL CHIP	100	5%	1/16W	
R829	1-216-687-11	METAL CHIP	33K	0.5%	1/10W	
R830	1-216-683-11	METAL CHIP	22K	0.5%	1/10W	
R831	1-216-811-11	METAL CHIP	150	5%	1/16W	
R832	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R833	1-216-817-11	METAL CHIP	470	5%	1/16W	
R834	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R835	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R836	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R837	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R838	1-216-809-11	METAL CHIP	100	5%	1/16W	
R839	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R840	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R841	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R842	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R843	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R844	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R845	1-216-817-11	METAL CHIP	470	5%	1/16W	
R846	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R847	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R848	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R849	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R850	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R851	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R852	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R853	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R854	1-216-817-11	METAL CHIP	470	5%	1/16W	
R855	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R856	1-216-846-11	METAL CHIP	120K	5%	1/16W	
R857	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R858	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R859	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R860	1-216-679-11	METAL CHIP	15K	0.5%	1/10W	
R863	1-216-817-11	METAL CHIP	470	5%	1/16W	
R864	1-216-846-11	METAL CHIP	120K	5%	1/16W	
R865	1-216-839-11	METAL CHIP	33K	5%	1/16W	

Ref. No.	Part No.	Description			Remark
R866	1-216-846-11	METAL CHIP	120K	5%	1/16W
R867	1-216-839-11	METAL CHIP	33K	5%	1/16W
R871	1-216-817-11	METAL CHIP	470	5%	1/16W
R872	1-216-821-11	METAL CHIP	1K	5%	1/16W
R873	1-216-834-11	METAL CHIP	12K	5%	1/16W
R874	1-216-834-11	METAL CHIP	12K	5%	1/16W
R875	1-216-834-11	METAL CHIP	12K	5%	1/16W

< FLEXIBLE BOARD >

W801	1-638-477-11	FP-388 FLEXIBLE BOARD

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* A-7071-380-A CC-61P BOARD, COMPLETE

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(Ref.No 3,000 Series)

< CONNECTOR >

CN511	1-569-363-21	CONNECTOR, FPC 15P
CN512	1-566-529-11	CONNECTOR, FPC (ZIF) 13P
CN513	1-566-527-11	CONNECTOR, FPC (ZIF) 11P

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* A-7062-679-A CD-58P BOARD, COMPLETE (Note 1)

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(Ref.No 1,000 Series)

3-744-718-01 HOLDER (10), C

< CAPACITOR >

Ref. No.	Part No.	Description			Remark
C101	1-126-200-11	ELECT CHIP	10uF	20%	35V
C102	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C104	1-128-008-11	ELECT CHIP	3.3uF	20%	35V
C105	1-126-607-11	ELECT CHIP	47uF	20%	4V
C107	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C110	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C111	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C112	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C113	1-128-013-11	ELECT CHIP	1uF	20%	50V
C114	1-128-008-11	ELECT CHIP	3.3uF	20%	35V
C115	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C121	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C122	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C123	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C124	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C125	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C126	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C127	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C128	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C129	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C130	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C131	1-162-638-11	CERAMIC CHIP	1uF		16V
C135	1-162-638-11	CERAMIC CHIP	1uF		16V
C136	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C137	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C138	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C140	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C141	1-162-942-11	CERAMIC CHIP	12PF	5%	50V
C142	1-135-145-11	TANTALUM CHIP	0.47uF	10%	25V
C144	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C147	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C187	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C188	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C189	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C190	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C191	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C192	1-126-100-11	ELECT	10uF	20%	6.3V

< CONNECTOR >

CN101	* 1-565-876-11	PIN, CONNECTOR (PC BOARD) 4P

< TRIMMER >

CT121	1-141-424-11	CAP, ADJ
CT122	1-141-356-11	CAP, ADJ

< DIODE >

D101	8-719-404-46	DIODE MA110
D102	8-719-404-52	DIODE MA143
D122	8-719-404-32	DIODE MA141WA
D123	8-719-404-46	DIODE MA110
D124	8-719-404-32	DIODE MA141WA
D125	8-719-949-46	DIODE 1T32
D128	8-719-404-46	DIODE MA110

< HIC >

HIC121	A-7068-174-A	HIC DT-77 BOARD, COMPLETE (Note 1)

< IC >

IC121	8-752-326-08	IC CXD1159Q

< COIL >

L101	1-412-063-21	INDUCTOR CHIP 68uH
L121	1-412-058-11	INDUCTOR CHIP 10uH
L122	1-412-058-11	INDUCTOR CHIP 10uH
L123	1-410-381-11	INDUCTOR CHIP 10uH
L182	1-412-058-11	INDUCTOR CHIP 10uH
L183	1-412-052-21	INDUCTOR CHIP 1uH
L184	1-412-058-11	INDUCTOR CHIP 10uH

Note 1) For replacement of CCD imager, CD-58P board, complete and DT-77 board, complete read carefully the CAUTIONS FOR REPLACEMENT OF CCD IMAGER on page 67.

Ref. No.	Part No.	Description	Remark
		< TRANSISTOR >	
Q101	8-765-420-02	TRANSISTOR 2SK300-3	
Q102	8-729-905-35	TRANSISTOR 2SC4081-R	
Q121	8-729-402-84	TRANSISTOR XN4601	
Q122	8-729-402-78	TRANSISTOR XN6401	
Q123	8-729-402-19	TRANSISTOR XN6501	
Q125	8-729-905-35	TRANSISTOR 2SC4081-R	
Q126	8-729-402-84	TRANSISTOR XN4601	
Q129	8-729-905-23	TRANSISTOR 2SA1576-R	
Q130	8-729-905-35	TRANSISTOR 2SC4081-R	
Q131	8-729-402-84	TRANSISTOR XN4601	
Q132	8-729-402-84	TRANSISTOR XN4601	
Q133	8-729-402-84	TRANSISTOR XN4601	
Q135	8-729-402-84	TRANSISTOR XN4601	
Q136	8-729-402-45	TRANSISTOR UN5212	
		< RESISTOR >	
R101	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R102	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R103	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R104	1-216-809-11	METAL CHIP 100 5% 1/16W	
R105	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R108	1-216-864-11	METAL CHIP 0	
R110	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R111	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R112	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R114	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R115	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R116	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R117	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R118	1-216-813-11	METAL CHIP 220 5% 1/16W	
R119	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R121	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R122	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R124	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R125	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R126	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R127	1-216-820-11	METAL CHIP 820 5% 1/16W	
R128	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R129	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R130	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R131	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R132	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R133	1-216-850-11	METAL CHIP 270K 5% 1/16W	
R136	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R138	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R139	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R140	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R141	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R142	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R143	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R148	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R149	1-216-864-11	METAL CHIP 0	
R154	1-216-864-11	METAL CHIP 0	
R155	1-216-864-11	METAL CHIP 0	
R156	1-216-809-11	METAL CHIP 100 5% 1/16W	
R157	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R158	1-216-862-11	METAL GLAZE 2.7M 5% 1/16W	
R159	1-216-809-11	METAL CHIP 100 5% 1/16W	
R160	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R162	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R163	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R164	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R165	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R166	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R167	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R168	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R169	1-216-864-11	METAL CHIP 0	
R171	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R173	1-216-813-11	METAL CHIP 220 5% 1/16W	
R181	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R182	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R183	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R184	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R185	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R186	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R187	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R188	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R189	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R190	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R191	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R192	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R193	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R194	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R195	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R196	1-216-813-11	METAL CHIP 220 5% 1/16W	
R197	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R198	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R199	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R200	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R201	1-216-671-11	METAL CHIP 6.8K 0.5% 1/10W	
R202	1-216-643-11	METAL CHIP 470 0.5% 1/10W	
R203	1-216-681-11	METAL CHIP 18K 0.5% 1/10W	
R204	1-216-671-11	METAL CHIP 6.8K 0.5% 1/10W	
R205	1-216-659-11	METAL CHIP 2.2K 0.5% 1/10W	
R206	1-216-681-11	METAL CHIP 18K 0.5% 1/10W	
R207	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R208	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	

Ref.No.	Part No.	Description			Remark
R209	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R210	1-216-833-11	METAL CHIP	10K	5%	1/16W
R215	1-216-842-11	METAL CHIP	56K	5%	1/16W
R216	1-216-833-11	METAL CHIP	10K	5%	1/16W
R217	1-216-833-11	METAL CHIP	10K	5%	1/16W
R218	1-216-833-11	METAL CHIP	10K	5%	1/16W
R219	1-216-833-11	METAL CHIP	10K	5%	1/16W
R220	1-216-835-11	METAL CHIP	15K	5%	1/16W
R221	1-216-840-11	METAL CHIP	39K	5%	1/16W
R222	1-216-833-11	METAL CHIP	10K	5%	1/16W
R229	1-216-864-11	METAL CHIP	0		
R230	1-216-833-11	METAL CHIP	10K	5%	1/16W
R231	1-216-813-11	METAL CHIP	220	5%	1/16W
R232	1-216-813-11	METAL CHIP	220	5%	1/16W
R233	1-216-841-11	METAL CHIP	47K	5%	1/16W
R234	1-216-841-11	METAL CHIP	47K	5%	1/16W

< FLEXIBLE BOARD >

W102	1-633-975-11	FP-268 FLEXIBLE BOARD

< CRYSTAL >

X121	1-579-076-11	VIBRATOR, CRYSTAL (28.375MHz)
X122	1-567-733-11	VIBRATOR, CRYSTAL (17MHz)

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* A-7071-383-A CK-ZK (PA) BOARD, COMPLETE
****
(Including the CK-45P and
ZK-11P boards)

1-633-985-11 FP-298 FLEXIBLE BOARD

CK-45PBOARD (Ref.No 5,000 Series)
****

3-712-410-01 HOLDER, RS

< CAPACITOR >

C670	1-163-038-00	CERAMIC CHIP	0.1uF	25V

< CONNECTOR >

CN670	1-565-874-11	PIN, CONNECTOR (PC BOARD) 2P

< DIODE >

D670	8-719-420-36	DIODE MA151A
D671	8-719-940-45	DIODE DWA010

< TRANSISTOR >

Ref.No.	Part No.	Description
Q670	8-729-100-66	TRANSISTOR 2SC1623
Q671	8-719-939-11	PHOTO INTERRUPTER GP-2S09-B
Q672	8-729-805-45	TRANSISTOR 2SC3395

< RESISTOR >

R670	1-216-041-00	METAL CHIP	470	5%	1/10W
R671	1-216-017-00	METAL CHIP	47	5%	1/10W
R672	1-216-089-00	METAL CHIP	47K	5%	1/10W
R673	1-216-093-00	METAL CHIP	68K	5%	1/10W

< SWITCH >

S670	1-571-684-11	SWITCH, TACTIL (SHUTTER SPEED)
S671	1-571-684-11	SWITCH, TACTIL (FOCUS)
S672	1-571-684-11	SWITCH, TACTIL (BACK LIGHT)
S673	1-571-684-11	SWITCH, TACTIL (PUSH AUTO)
S674	1-571-684-11	SWITCH, TACTIL (WHT BAL)

ZK-11P BOARD (Ref.No 5,000 Series)
****

< SWITCH >

S680	1-571-684-11	SWITCH, TACTIL (MACRO AF)
S681	1-571-684-11	SWITCH, TACTIL (FADER)

****

* A-7062-682-A CT-38P BOARD, COMPLETE
****
(Ref.No 2,000 Series)

< CAPACITOR >

C717	1-128-015-11	ELECT CHIP	22uF	0	4V
C719	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C720	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C721	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C722	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C723	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C725	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C728	1-128-020-11	ELECT CHIP	10uF	0	6.3V
C729	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C901	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C902	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C903	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C904	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C905	1-162-997-11	CERAMIC CHIP	10PF	0.5PF	50V
C906	1-163-123-00	CERAMIC CHIP	180PF	5%	50V
C907	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C908	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C909	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C910	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C911	1-162-974-11	CERAMIC CHIP	0.01uF		50V

< CONNECTOR >

Ref. No.	Part No.	Description				Remark
CN705	1-568-336-11	CONNECTOR, BOARD TO BOARD 20P				

< TRIMMER >

Ref. No.	Part No.	Description				Remark
CT901	1-141-331-11	CAP, CHIP TRIMMER				
CT902	1-141-417-11	CAP, ADJ				

< DIODE >

Ref. No.	Part No.	Description				Remark
D901	8-719-949-46	DIODE 1T32				

< IC >

Ref. No.	Part No.	Description				Remark
IC707	8-759-710-29	IC NJM2235M				
IC708	8-759-710-09	IC NJM2233AM				
IC901	8-759-970-80	IC MB673198U				
IC902	8-759-148-62	IC uPD6451GT				

< COIL >

Ref. No.	Part No.	Description				Remark
L901	1-412-032-11	INDUCTOR, CHIP 100uH				
L902	1-412-143-11	INDUCTOR 39uH				
L903	1-412-282-41	INDUCTOR 470uH				

< RESISTOR >

Ref. No.	Part No.	Description				Remark
R721	1-216-864-11	METAL CHIP	0			
R723	1-216-295-00	METAL CHIP	0	5%	1/10W	
R727	1-218-720-91	METAL CHIP	15K	0.50%	1/16W	
R728	1-218-719-91	METAL CHIP	13K	0.50%	1/16W	
R730	1-216-864-11	METAL CHIP	0			
R731	1-216-847-11	METAL CHIP	150K	5%	1/16W	
R732	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R733	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R734	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R735	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R739	1-216-295-00	METAL CHIP	0	5%	1/10W	
R793	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R795	1-216-864-11	METAL CHIP	0			
R901	1-216-864-11	METAL CHIP	0			
R902	1-216-864-11	METAL CHIP	0			
R903	1-216-864-11	METAL CHIP	0			
R904	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R905	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R906	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R907	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R908	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R909	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R911	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R912	1-216-864-11	METAL CHIP	0			
R913	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R914	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R915	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R916	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R917	1-216-842-11	METAL CHIP	56K	5%	1/16W	
R918	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R919	1-216-864-11	METAL CHIP	0			
R920	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	
R921	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R923	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R924	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R925	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R926	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R927	1-216-864-11	METAL CHIP	0			
R959	1-216-836-11	METAL CHIP	18K	5%	1/16W	

< FLEXIBLE BOARD >

Ref. No.	Part No.	Description				Remark
W704	1-633-979-11	FP-299 FLEXIBLE BOARD				

****

* A-7062-687-A DK-11P BOARD, COMPLETE
****
(Ref.No 5,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description				Remark
C950	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C951	1-163-003-11	CERAMIC CHIP	330PF	10%	50V	
C952	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	

< CONNECTOR >

Ref. No.	Part No.	Description				Remark
CN950	1-569-478-21	CONNECTOR, FPC 20P				

< IC >

Ref. No.	Part No.	Description				Remark
IC950	8-759-145-63	IC uPD7564G-540				

< TRANSISTOR >

Ref. No.	Part No.	Description				Remark
Q950	8-729-901-01	TRANSISTOR DTC144EK				

< RESISTOR >

Ref. No.	Part No.	Description				Remark
R950	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R951	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R952	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R953	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R954	1-216-029-00	METAL CHIP	150	5%	1/10W	
R955	1-216-025-00	METAL CHIP	100	5%	1/10W	
R961	1-216-049-00	METAL CHIP	1K	5%	1/10W	

< FLEXIBLE BOARD >

Ref. No.	Part No.	Description				Remark
W951	1-633-984-11	FP-297 FLEXIBLE BOARD				

Ref. No.	Part No.	Description	Remark
		< CRYSTAL >	
X950	1-577-163-21	VIBLATOR, CERAMIC (700KHz)	

****

* A-7071-382-A ED-30P BOARD, COMPLETE
****
(Ref.No 5,000 Series)

Ref. No.	Part No.	Description	Remark
		< DIODE >	
D920	8-719-941-34	DIODE GL-1HD51	
		< SWITCH >	
S920	1-571-684-11	SWITCH, TACTIL (EDITSEARCH -)	
S921	1-571-684-11	SWITCH, TACTIL (EDITSEARCH +)	
		< BOARD PIN >	
W922	1-566-095-11	PIN, BOARD TO BOARD 6P	

****

1-628-060-12 FP-89 FLEXIBLE BOARD
****
(Ref.No 8,000 Series)

Ref. No.	Part No.	Description	Remark
		< PHOTO COUPLER >	
D301	8-719-820-44	PHOTO COUPLER TLP-907-0	
		< PHOTO SENSOR >	
Q301	8-729-906-48	PHOTO SENSOR EE-TP109	
		< SWITCH >	
S301	1-572-173-11	SWITCH, SLIDE (ENCODER)	

****

1-628-061-12 FP-90 FLEXIBLE BOARD
****
(Ref.No 8,000 Series)

Ref. No.	Part No.	Description	Remark
		< DIODE >	
D302	8-719-940-81	DIODE GL452S	
		< PHOTO COUPLER >	
D303	8-719-820-44	PHOTO COUPLER TLP-907-0	
		< PHOTO SENSOR >	
Q302	8-729-906-48	PHOTO SENSOR EE-TP109	

Ref. No.	Part No.	Description	Remark
		< SWITCH >	
S302	1-572-298-11	SWITCH, PUSH (REC PROOF/TAPE SELECT)	

****

* A-7062-684-A FU-100P BOARD, COMPLETE
****
(Ref.No 5,000 Series)

1-537-281-21 TERMINAL BOARD (EASY CONNECTOR)

Ref. No.	Part No.	Description			
		< CAPACITOR >			
C503	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C504	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C505	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C506	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C507	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C514	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C515	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C516	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C517	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C518	1-135-155-21	TANTALUM CHIP	4.7uF	10%	10V
C519	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C994	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C995	1-128-292-11	ELECT	220uF	20%	10V
C996	1-162-974-11	CERAMIC CHIP	0.01uF		50V

Ref. No.	Part No.	Description	Remark
		< CONNECTOR >	
CN502	1-569-480-11	CONNECTOR, FPC 23P	
CN992	1-565-528-11	PIN, CONNECTOR (PC BOARD) 3P	
		< TRIMMER >	
CT501	1-141-331-11	CAP, CHIP TRIMMER	
		< DIODE >	
D501	8-719-421-27	DIODE MA728	
D503	8-719-404-46	DIODE MA110	
D504	8-719-404-46	DIODE MA110	
D505	8-719-404-46	DIODE MA110	
D511	8-719-404-46	DIODE MA110	
D512	8-719-989-22	DIODE CL-150R-CD	
		< IC >	
IC501	8-759-154-18	IC uPD75316GF-116-3B9	
IC502	8-759-511-22	IC CXA1448N	
IC503	8-759-937-54	IC S-81250HG-RD-S	

Ref. No.	Part No.	Description			Remark
		< COIL >			
L501	1-412-032-11	INDUCTOR CHIP 100uH			
L990	1-412-026-11	INDUCTOR CHIP 1uH			
L991	1-410-337-11	INDUCTOR 1uH			
L992	1-410-337-11	INDUCTOR 1uH			
L996	1-412-026-11	INDUCTOR CHIP 1uH			
L997	1-412-026-11	INDUCTOR CHIP 1uH			
		< IC LINK >			
PS990 ⚠	1-532-841-21	LINK, IC (PRF1600 1.6A)			
PS991 ⚠	1-532-840-21	LINK, IC (PRF1250 1.25A)			
PS992 ⚠	1-532-840-21	LINK, IC (PRF1250 1.25A)			
		< TRANSISTOR >			
Q509	8-729-904-20	TRANSISTOR	FMA2		
Q579	8-729-905-12	TRANSISTOR	DTA144EU		
Q990	8-729-101-07	TRANSISTOR	2SB798-DL		
Q991	8-729-905-35	TRANSISTOR	2SC4081-R		
		< RESISTOR >			
R501	1-216-841-11	METAL CHIP	47K	5%	1/16W
R505	1-216-821-11	METAL CHIP	1K	5%	1/16W
R511	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R512	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R513	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R514	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R515	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R516	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R517	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R518	1-216-851-11	METAL CHIP	330K	5%	1/16W
R520	1-216-864-11	METAL CHIP	0		
R521	1-216-809-11	METAL CHIP	100	5%	1/16W
R522	1-216-809-11	METAL CHIP	100	5%	1/16W
R523	1-216-841-11	METAL CHIP	47K	5%	1/16W
R524	1-216-841-11	METAL CHIP	47K	5%	1/16W
R525	1-216-841-11	METAL CHIP	47K	5%	1/16W
R527	1-216-841-11	METAL CHIP	47K	5%	1/16W
R528	1-216-841-11	METAL CHIP	47K	5%	1/16W
R529	1-216-841-11	METAL CHIP	47K	5%	1/16W
R530	1-216-841-11	METAL CHIP	47K	5%	1/16W
R531	1-216-809-11	METAL CHIP	100	5%	1/16W
R532	1-216-809-11	METAL CHIP	100	5%	1/16W
R533	1-216-821-11	METAL CHIP	1K	5%	1/16W
R534	1-216-821-11	METAL CHIP	1K	5%	1/16W
R535	1-216-821-11	METAL CHIP	1K	5%	1/16W
R536	1-216-821-11	METAL CHIP	1K	5%	1/16W
R538	1-216-821-11	METAL CHIP	1K	5%	1/16W
R539	1-216-841-11	METAL CHIP	47K	5%	1/16W
R540	1-216-841-11	METAL CHIP	47K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R541	1-216-841-11	METAL CHIP	47K	5%	1/16W
R542	1-216-833-11	METAL CHIP	10K	5%	1/16W
R543	1-216-833-11	METAL CHIP	10K	5%	1/16W
R544	1-216-833-11	METAL CHIP	10K	5%	1/16W
R545	1-216-821-11	METAL CHIP	1K	5%	1/16W
R546	1-216-821-11	METAL CHIP	1K	5%	1/16W
R547	1-216-833-11	METAL CHIP	10K	5%	1/16W
R548	1-216-833-11	METAL CHIP	10K	5%	1/16W
R549	1-216-833-11	METAL CHIP	10K	5%	1/16W
R550	1-216-833-11	METAL CHIP	10K	5%	1/16W
R551	1-216-833-11	METAL CHIP	10K	5%	1/16W
R552	1-216-833-11	METAL CHIP	10K	5%	1/16W
R553	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R557	1-216-861-11	METAL CHIP	2.2M	5%	1/16W
R558	1-216-841-11	METAL CHIP	47K	5%	1/16W
R559	1-216-841-11	METAL CHIP	47K	5%	1/16W
R560	1-216-817-11	METAL CHIP	470	5%	1/16W
R561	1-216-864-11	METAL CHIP	0		
R563	1-216-864-11	METAL CHIP	0		
R564	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R571	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R572	1-216-821-11	METAL CHIP	1K	5%	1/16W
R573	1-216-821-11	METAL CHIP	1K	5%	1/16W
R575	1-216-864-11	METAL CHIP	0		
R576	1-216-864-11	METAL CHIP	0		
R577	1-216-864-11	METAL CHIP	0		
R578	1-216-833-11	METAL CHIP	10K	5%	1/16W
R590	1-216-833-11	METAL CHIP	10K	5%	1/16W
R990	1-216-138-00	METAL CHIP	3.3	5%	1/8W
R991	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R992	1-216-820-11	METAL CHIP	820	5%	1/16W
R993	1-216-836-11	METAL CHIP	18K	5%	1/16W
R994	1-216-807-11	METAL CHIP	68	5%	1/16W
		< SWITCH >			
S501	1-571-275-31	SWITCH, SLIDE (REMOTE COMMANDER ON/OFF)			
S502	1-572-284-11	SWITCH, SLIDE (EJECT)			
		< FLEXIBLE BOARD >			
W501	1-633-978-11	FP-295 FLEXIBLE BOARD			
W502	1-633-977-11	FP-293 FLEXIBLE BOARD			
W901	1-633-982-11	FP-294 FLEXIBLE BOARD			
		< CRYSTAL >			
X501	1-577-101-11	VIBRATOR, CERAMIC (4.19MHz)			
X502	1-527-997-21	VIBRATOR, CRYSTAL (32.78MHz)			

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

* A-7071-386-A LI-35P BOARD, COMPLETE

(Ref.No 5,000 Series)

Ref.No.	Part No.	Description			Remark
		< CAPACITOR >			
C970	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C971	1-163-035-00	CERAMIC CHIP	0.047uF		50V
		< CONNECTOR >			
CN961	1-565-874-11	PIN, CONNECTOR (PC BOARD) 2P			
		< BATTERY HOLDER >			
J902	1-550-104-11	HOLDER, BATTERY (LITHIUM)			

* * *

* A-7062-688-A MC-76P BOARD, COMPLETE

(Ref.No 4,000 Series)

Ref.No.	Part No.	Description			Remark
		< CAPACITOR >			
C650	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C651	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C652	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C653	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C655	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C656	1-126-154-11	ELECT	47uF	20%	6.3V
C657	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C659	1-162-638-11	CERAMIC CHIP	1uF		16V
C678	1-126-155-11	ELECT	100uF	20%	6.3V
C681	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C683	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C685	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C687	1-162-638-11	CERAMIC CHIP	1uF		16V
		< CONNECTOR >			
CN650	1-565-528-11	PIN, CONNECTOR (PC BOARD) 3P			
CN652	1-565-874-11	PIN, CONNECTOR (PC BOARD) 2P			
		< DIODE >			
D655	8-719-404-46	DIODE MA110			
		< IC >			
IC650	8-759-822-37	IC LA7293M			
		< TRANSISTOR >			
Q650	8-729-109-44	TRANSISTOR 2SK94			
Q651	8-729-905-35	TRANSISTOR 2SC4081-R			
		< RESISTOR >			
R650	1-216-833-11	METAL CHIP	10K	5%	1/16W
R651	1-216-818-11	METAL CHIP	560	5%	1/16W
R652	1-216-833-11	METAL CHIP	10K	5%	1/16W
R653	1-216-844-11	METAL CHIP	82K	5%	1/16W
R654	1-216-845-11	METAL CHIP	100K	5%	1/16W
R655	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R656	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R665	1-216-837-11	METAL CHIP	22K	5%	1/16W
R675	1-216-864-11	METAL CHIP	0		
R680	1-216-857-11	METAL CHIP	1M	5%	1/16W
R681	1-216-841-11	METAL CHIP	47K	5%	1/16W
R682	1-216-864-11	METAL CHIP	0		
R695	1-216-864-11	METAL CHIP	0		
R696	1-216-864-11	METAL CHIP	0		
		< SWITCH >			
S650	1-553-977-00	SWITCH, SLIDE (BUILTIN MIC/WIND)			
S651	1-571-787-41	SWITCH, TACTILE (REC START/STOP)			

* * *

* A-7062-685-A RM-47P BOARD, COMPLETE

(Ref.No 5,000 Series)

Ref.No.	Part No.	Description			Remark
		< IC >			
IC960	8-749-921-76	IC GP1U56			

* * *

* A-7062-681-A SS-136P BOARD, COMPLETE

(Ref.No 3,000 Series)

Ref.No.	Part No.	Description			Remark
	1-633-923-11	FP-252 FLEXIBLE BOARD			
	1-633-924-11	FP-248 FLEXIBLE BOARD			
	3-831-441-11	CLOTH, UNWEAVED (25X6X0.5)			
		< CAPACITOR >			
C400	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C401	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C402	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C409	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C501	1-126-157-11	ELECT	10uF	20%	16V
C502	1-126-160-11	ELECT	1uF	20%	50V
C504	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C505	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C506	1-126-163-11	ELECT	4.7uF	20%	50V
C507	1-164-330-21	CERAMIC CHIP	0.22uF	10%	16V
C508	1-164-330-21	CERAMIC CHIP	0.22uF	10%	16V

Ref. No.	Part No.	Description			Remark
C509	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C510	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C511	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C512	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C513	1-128-078-11	ELECT	33uF	20%	10V
C514	1-130-495-00	MYLAR	0.1uF	5%	50V
C515	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C516	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C517	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C518	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C519	1-164-330-21	CERAMIC CHIP	0.22uF	10%	16V
C520	1-164-330-21	CERAMIC CHIP	0.22uF	10%	16V
C521	1-164-330-21	CERAMIC CHIP	0.22uF	10%	16V
C522	1-162-638-11	CERAMIC CHIP	1uF		16V
C523	1-128-078-11	ELECT	33uF	20%	10V
C524	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C525	1-126-162-11	ELECT	3.3uF	20%	50V
C526	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C528	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C529	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C530	1-126-157-11	ELECT	10uF	20%	16V
C531	1-126-157-11	ELECT	10uF	20%	16V
C532	1-162-961-11	CERAMIC CHIP	330PF	10%	50V
C533	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C534	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C535	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C536	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C537	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C538	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C539	1-162-941-11	CERAMIC CHIP	10PF	0.5PF	50V
C540	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C541	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C542	1-164-247-11	CERAMIC CHIP	0.047uF	10%	16V
C543	1-164-247-11	CERAMIC CHIP	0.047uF	10%	16V
C545	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C546	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C547	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C548	1-162-638-11	CERAMIC CHIP	1uF		16V
C549	1-162-638-11	CERAMIC CHIP	1uF		16V
C550	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C551	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V
C552	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C553	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C554	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C555	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C556	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C557	1-163-081-00	CERAMIC CHIP	0.22uF		25V
C559	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C560	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C561	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C562	1-126-157-11	ELECT	10uF	20%	16V
C563	1-126-157-11	ELECT	10uF	20%	16V
C564	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C565	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C566	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C567	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C568	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C569	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C592	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C609	1-128-078-11	ELECT	33uF	20%	10V
C610	1-124-589-11	ELECT	47uF	20%	16V
C620	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C625	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C720	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C901	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C902	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C903	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C904	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C905	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C906	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C907	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C908	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C909	1-128-078-11	ELECT	33uF	20%	10V
C910	1-128-078-11	ELECT	33uF	20%	10V
C911	1-128-078-11	ELECT	33uF	20%	10V
C912	1-127-558-11	ELECT(SOLID)	10uF	20%	10V
C913	1-128-078-11	ELECT	33uF	20%	10V
C914	1-127-561-11	ELECT(SOLID)	33uF	20%	10V
C915	1-127-558-11	ELECT(SOLID)	10uF	20%	10V
C916	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C917	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C918	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C920	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C921	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C922	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C923	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C925	1-164-217-11	CERAMIC CHIP	150PF	0.25PF	50V
C930	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C931	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C932	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C935	1-164-156-11	CERAMIC CHIP	0.1uF		25V

< CONNECTOR >

Ref. No.	Part No.	Description
CN501	* 1-565-211-11	CONNECTOR, FPC (ZIF) 22P
CN502	1-569-364-21	CONNECTOR, FPC 19P
CN503	1-565-878-11	PIN, CONNECTOR (PC BOARD) 6P
CN505	1-565-874-11	PIN, CONNECTOR (PC BOARD) 2P
CN506	1-569-627-11	CONNECTOR, BOARD TO BOARD 16P

Ref.No.	Part No.	Description	Remark
CN507	1-569-626-11	CONNECTOR, BOARD TO BOARD 20P	
CN508	1-565-530-11	PIN, CONNECTOR (PC BOARD) 5P	
CN509	1-568-207-11	CONNECTOR, FPC (ZIF) 23P	

< DIODE >

Ref.No.	Part No.	Description	Remark
D501	8-719-941-86	DIODE DAN202U	
D506	8-719-941-86	DIODE DAN202U	
D510	8-719-404-46	DIODE MA110	
D901	8-719-938-75	DIODE SB05-05CP	
D902	8-719-938-75	DIODE SB05-05CP	
D903	8-719-938-78	DIODE SB10-05PCP	

< IC >

Ref.No.	Part No.	Description	Remark
IC501	8-752-818-70	IC CXP80116-830Q	
IC502	8-759-148-05	IC CXA8010M	
IC503	8-759-990-55	IC CXA8006M	
IC504	8-759-805-06	IC CXA1127M	
IC506	8-752-035-48	IC CXA1204Q	
IC507	8-759-998-92	IC LM393D	
IC508	8-759-748-65	IC BR93CS46F	
IC901	8-759-500-42	IC MB3783PFV	

< COIL >

Ref.No.	Part No.	Description	Remark
L503	1-408-795-21	INDUCTOR, CHIP 330uH	
L505	1-410-381-11	INDUCTOR, CHIP 10uH	
L515	1-412-028-11	INDUCTOR, CHIP 4.7uH	
L901	1-424-104-11	COIL, CHOKE 10uH	
L902	1-424-104-11	COIL, CHOKE 10uH	
L903	1-424-106-11	COIL, CHOKE 47uH	
L904	1-424-106-11	COIL, CHOKE 47uH	
L905	1-424-105-11	COIL, CHOKE 22uH	
L906	1-412-027-11	INDUCTOR, CHIP 2.2uH	
L907	1-412-029-11	INDUCTOR, CHIP 10uH	
L908	1-412-029-11	INDUCTOR, CHIP 10uH	
L909	1-412-029-11	INDUCTOR, CHIP 10uH	

< IC LINK >

Ref.No.	Part No.	Description	Remark
PS501 ⚠	1-532-605-00	LINK, IC (ICP-N10 0.4A)	

< TRANSISTOR >

Ref.No.	Part No.	Description	Remark
Q400	8-729-905-35	TRANSISTOR 2SC4081-R	
Q401	8-729-905-35	TRANSISTOR 2SC4081-R	
Q402	8-729-905-35	TRANSISTOR 2SC4081-R	
Q502	8-729-905-35	TRANSISTOR 2SC4081-R	
Q503	8-729-905-24	TRANSISTOR 2SA1576-S	
Q505	8-729-905-35	TRANSISTOR 2SC4081-R	
Q506	8-729-905-24	TRANSISTOR 2SA1576-S	
Q507	8-729-905-35	TRANSISTOR 2SC4081-R	
Q508	8-729-905-24	TRANSISTOR 2SA1576-S	
Q509	8-729-905-35	TRANSISTOR 2SC4081-R	
Q510	8-729-905-35	TRANSISTOR 2SC4081-R	
Q511	8-729-905-24	TRANSISTOR 2SA1576-S	
Q512	8-729-907-00	TRANSISTOR DTC114EU	
Q513	8-729-905-35	TRANSISTOR 2SC4081-R	
Q514	8-729-905-35	TRANSISTOR 2SC4081-R	
Q515	8-729-905-18	TRANSISTOR DTC144EU	
Q516	8-729-905-18	TRANSISTOR DTC144EU	
Q540	8-729-822-48	TRANSISTOR FC101	
Q901	8-729-805-25	TRANSISTOR 2SB1121	
Q902	8-729-805-25	TRANSISTOR 2SB1121	
Q903	8-729-805-25	TRANSISTOR 2SB1121	
Q904	8-729-820-47	TRANSISTOR 2SB1202FAT	
Q905	8-729-905-35	TRANSISTOR 2SC4081-R	

< RESISTOR >

Ref.No.	Part No.	Description	Remark
R400	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R401	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R402	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R403	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R404	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R405	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R406	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R407	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R408	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R409	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R417	1-216-864-11	METAL CHIP 0	
R418	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R419	1-216-864-11	METAL CHIP 0	
R501	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R502	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R503	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R504	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R506	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R507	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R508	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R510	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R511	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R512	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R513	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R514	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R515	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R516	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R517	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R518	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R519	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R520	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R521	1-216-845-11	METAL CHIP 100K 5% 1/16W	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

SS-136P

Ref. No.	Part No.	Description			Remark
R522	1-216-833-11	METAL CHIP	10K	5%	1/16W
R523	1-216-845-11	METAL CHIP	100K	5%	1/16W
R524	1-216-833-11	METAL CHIP	10K	5%	1/16W
R525	1-216-845-11	METAL CHIP	100K	5%	1/16W
R526	1-216-833-11	METAL CHIP	10K	5%	1/16W
R527	1-216-845-11	METAL CHIP	100K	5%	1/16W
R528	1-216-833-11	METAL CHIP	10K	5%	1/16W
R529	1-216-845-11	METAL CHIP	100K	5%	1/16W
R530	1-216-833-11	METAL CHIP	10K	5%	1/16W
R531	1-216-845-11	METAL CHIP	100K	5%	1/16W
R532	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R534	1-216-845-11	METAL CHIP	100K	5%	1/16W
R535	1-216-843-11	METAL CHIP	68K	5%	1/16W
R536	1-216-857-11	METAL CHIP	1M	5%	1/16W
R537	1-216-833-11	METAL CHIP	10K	5%	1/16W
R538	1-216-833-11	METAL CHIP	10K	5%	1/16W
R539	1-216-833-11	METAL CHIP	10K	5%	1/16W
R540	1-216-845-11	METAL CHIP	100K	5%	1/16W
R541	1-216-833-11	METAL CHIP	10K	5%	1/16W
R542	1-216-837-11	METAL CHIP	22K	5%	1/16W
R543	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R544	1-216-837-11	METAL CHIP	22K	5%	1/16W
R545	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R546	1-216-837-11	METAL CHIP	22K	5%	1/16W
R547	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R548	1-217-671-11	METAL CHIP	1	5%	1/10W
R549	1-217-671-11	METAL CHIP	1	5%	1/10W
R550	1-217-671-11	METAL CHIP	1	5%	1/10W
R551	1-217-671-11	METAL CHIP	1	5%	1/10W
R552	1-216-037-00	METAL CHIP	330	5%	1/10W
R553	1-216-833-11	METAL CHIP	10K	5%	1/16W
R555	1-216-845-11	METAL CHIP	100K	5%	1/16W
R556	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R558	1-216-691-11	METAL CHIP	47K	0.5%	1/10W
R559	1-216-691-11	METAL CHIP	47K	0.5%	1/10W
R560	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R561	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R562	1-216-813-11	METAL CHIP	220	5%	1/16W
R563	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R564	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R565	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R566	1-216-833-11	METAL CHIP	10K	5%	1/16W
R567	1-216-833-11	METAL CHIP	10K	5%	1/16W
R568	1-216-817-11	METAL CHIP	470	5%	1/16W
R569	1-216-817-11	METAL CHIP	470	5%	1/16W
R571	1-216-841-11	METAL CHIP	47K	5%	1/16W
R572	1-216-841-11	METAL CHIP	47K	5%	1/16W
R573	1-216-841-11	METAL CHIP	47K	5%	1/16W
R574	1-216-841-11	METAL CHIP	47K	5%	1/16W
R575	1-216-817-11	METAL CHIP	470	5%	1/16W
R576	1-216-813-11	METAL CHIP	220	5%	1/16W
R577	1-216-811-11	METAL CHIP	150	5%	1/16W
R578	1-216-817-11	METAL CHIP	470	5%	1/16W
R579	1-216-803-11	METAL CHIP	33	5%	1/16W
R582	1-216-864-11	METAL CHIP	0		
R583	1-216-833-11	METAL CHIP	10K	5%	1/16W
R586	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R587	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R589	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R590	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R591	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R592	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R594	1-216-835-11	METAL CHIP	15K	5%	1/16W
R595	1-216-839-11	METAL CHIP	33K	5%	1/16W
R596	1-216-833-11	METAL CHIP	10K	5%	1/16W
R597	1-216-821-11	METAL CHIP	1K	5%	1/16W
R598	1-216-809-11	METAL CHIP	100	5%	1/16W
R599	1-216-809-11	METAL CHIP	100	5%	1/16W
R600	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R601	1-216-839-11	METAL CHIP	33K	5%	1/16W
R602	1-216-839-11	METAL CHIP	33K	5%	1/16W
R603	1-216-857-11	METAL CHIP	1M	5%	1/16W
R604	1-216-837-11	METAL CHIP	22K	5%	1/16W
R605	1-216-833-11	METAL CHIP	10K	5%	1/16W
R606	1-216-837-11	METAL CHIP	22K	5%	1/16W
R607	1-216-857-11	METAL CHIP	1M	5%	1/16W
R608	1-216-854-11	METAL CHIP	560K	5%	1/16W
R609	1-216-833-11	METAL CHIP	10K	5%	1/16W
R610	1-216-845-11	METAL CHIP	100K	5%	1/16W
R611	1-216-845-11	METAL CHIP	100K	5%	1/16W
R613	1-216-845-11	METAL CHIP	100K	5%	1/16W
R614	1-216-833-11	METAL CHIP	10K	5%	1/16W
R615	1-216-851-11	METAL CHIP	330K	5%	1/16W
R616	1-216-857-11	METAL CHIP	1M	5%	1/16W
R618	1-216-847-11	METAL CHIP	150K	5%	1/16W
R619	1-216-837-11	METAL CHIP	22K	5%	1/16W
R620	1-216-837-11	METAL CHIP	22K	5%	1/16W
R621	1-216-857-11	METAL CHIP	1M	5%	1/16W
R622	1-216-821-11	METAL CHIP	1K	5%	1/16W
R623	1-216-833-11	METAL CHIP	10K	5%	1/16W
R624	1-216-833-11	METAL CHIP	10K	5%	1/16W
R625	1-216-845-11	METAL CHIP	100K	5%	1/16W
R626	1-216-833-11	METAL CHIP	10K	5%	1/16W
R627	1-216-833-11	METAL CHIP	10K	5%	1/16W
R628	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R629	1-216-182-00	METAL GLAZE	220	5%	1/8W
R630	1-216-182-00	METAL GLAZE	220	5%	1/8W
R631	1-216-815-11	METAL CHIP	330	5%	1/16W

Ref. No.	Part No.	Description			Remark
R632	1-216-813-11	METAL CHIP	220	5%	1/16W
R689	1-216-841-11	METAL CHIP	47K	5%	1/16W
R714	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R715	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R716	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R717	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R719	1-216-841-11	METAL CHIP	47K	5%	1/16W
R720	1-216-841-11	METAL CHIP	47K	5%	1/16W
R726	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R727	1-216-833-11	METAL CHIP	10K	5%	1/16W
R728	1-216-821-11	METAL CHIP	1K	5%	1/16W
R730	1-216-837-11	METAL CHIP	22K	5%	1/16W
R735	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R761	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R762	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R763	1-216-837-11	METAL CHIP	22K	5%	1/16W
R764	1-216-857-11	METAL CHIP	1M	5%	1/16W
R765	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R810	1-216-841-11	METAL CHIP	47K	5%	1/16W
R811	1-216-821-11	METAL CHIP	1K	5%	1/16W
R812	1-216-821-11	METAL CHIP	1K	5%	1/16W
R813	1-216-821-11	METAL CHIP	1K	5%	1/16W
R840	1-216-296-00	METAL CHIP	0	5%	1/8W
R841	1-216-296-00	METAL CHIP	0	5%	1/8W
R842	1-216-296-00	METAL CHIP	0	5%	1/8W
R850	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R851	1-216-864-11	METAL CHIP	0		
R855	1-216-809-11	METAL CHIP	100	5%	1/16W
R857	1-216-861-11	METAL CHIP	2.2M	5%	1/16W
R901	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R902	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R903	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R904	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R905	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R906	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R907	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R908	1-216-166-00	METAL GLAZE	47	5%	1/8W
R909	1-216-166-00	METAL GLAZE	47	5%	1/8W
R910	1-216-164-00	METAL GLAZE	39	5%	1/8W
R911	1-216-845-11	METAL CHIP	100K	5%	1/16W
R912	1-216-833-11	METAL CHIP	10K	5%	1/16W
R913	1-216-813-11	METAL CHIP	220	5%	1/16W
R914	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R915	1-216-833-11	METAL CHIP	10K	5%	1/16W
R916	1-216-833-11	METAL CHIP	10K	5%	1/16W
R924	1-216-821-11	METAL CHIP	1K	5%	1/16W
R927	1-216-833-11	METAL CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description	Remark
		< VARIABLE RESISTOR >	
RV901	1-238-089-11	RES, ADJ CERMET4.7K	
RV902	1-238-087-11	RES, ADJ CERMET1K	
		< CONNECTOR >	
W505	1-562-880-11	CONNECTOR, CARD EDGE 15P	
W510	1-569-346-11	CONNECTOR, FPC (TRANSLATION) 10P	
		< CRYSTAL >	
X501	1-577-467-21	VIBRATOR, CRYSTAL (16MHz)	
X502	1-567-827-11	VIBRATOR, CRYSTAL (5.86MHz)	

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* A-7071-387-A SW-174P BOARD, COMPLETE
****
(Ref.No 4,000 Series)

		< CONNECTOR >	
CN930	* 1-566-761-11	PIN, CONNECTOR (PC BOARD) 6P	
CN931	1-575-846-11	CONNECTOR, FPC (NON ZIF) 6P	
		< DIODE >	
D900	8-719-977-34	DIODE DTZ12	
D901	8-719-977-34	DIODE DTZ12	
D902	8-719-404-46	DIODE MA110	
D903	8-719-977-34	DIODE DTZ12	
D905	8-719-404-46	DIODE MA110	
D906	8-719-404-46	DIODE MA110	
D907	8-719-404-46	DIODE MA110	
D908	8-719-976-97	DIODE DTZ5.1	
		< JACK >	
J900	1-507-929-41	JACK	
J901	1-565-276-21	JACK, ULTRA SMALL 1P	
		< COIL >	
L900	1-410-369-11	INDUCTOR CHIP 1uH	
L901	1-410-369-11	INDUCTOR CHIP 1uH	
L903	1-410-192-51	INDUCTOR CHIP 1uH	
L904	1-410-369-11	INDUCTOR CHIP 1uH	
L905	1-410-369-11	INDUCTOR CHIP 1uH	
		< TRANSISTOR >	
Q900	8-729-901-01	TRANSISTOR DTC144EK	
Q901	8-729-902-XX	TRANSISTOR DTC114TK	

Ref. No.	Part No.	Description			Remark
		< RESISTOR >			
R900	1-216-073-00	METAL CHIP	10K	5%	1/10W
R901	1-216-073-00	METAL CHIP	10K	5%	1/10W
R902	1-216-295-00	METAL CHIP	0	5%	1/10W
		< SWITCH >			
S900	1-570-870-11	SWITCH, SLIDE (STANDBY/LOCK)			
S901	1-571-838-11	SWITCH, TACTIL (START/STOP)			

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* A-7062-683-A VA-67P BOARD, COMPLETE (AEP/UK)
****
(Ref. No 2,000 Series)

* A-7062-824-A VA-67P BOARD, COMPLETE (Australian)
****
(Ref. No 2,000 Series)

Part No.	Description
1-537-142-21	TERMINAL BOARD
3-719-695-01	SCREW (M1.7X3.5), SPECIAL HEAD
3-744-842-01	SUPPORT, CT PC BOARD

< CAPACITOR >

Ref. No.	Part No.	Description			Remark
C002	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C071	1-128-004-11	ELECT CHIP	10uF	20%	16V
C072	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C101	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C102	1-128-004-11	ELECT CHIP	10uF	20%	16V
C103	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C104	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C105	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C108	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C109	1-162-937-11	CERAMIC CHIP	6PF	0.5PF	50V
C110	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C111	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C112	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C113	1-162-942-11	CERAMIC CHIP	12PF	5%	50V
C114	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C117	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C121	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C122	1-128-004-11	ELECT CHIP	10uF	20%	16V
C123	1-162-954-11	CERAMIC CHIP	120PF	5%	50V
C126	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C127	1-164-382-11	CERAMIC CHIP	91PF	5%	50V
C129	1-162-956-11	CERAMIC CHIP	180PF	5%	50V
C141	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C143	1-162-948-11	CERAMIC CHIP	39PF	5%	50V
C144	1-162-946-11	CERAMIC CHIP	27PF	5%	50V
C146	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C147	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C171	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C172	1-162-943-11	CERAMIC CHIP	15PF	5%	50V
C181	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C183	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C200	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C201	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C202	1-162-952-11	CERAMIC CHIP	82PF	5%	50V
C203	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C204	1-128-004-11	ELECT CHIP	10uF	20%	16V
C205	1-128-004-11	ELECT CHIP	10uF	20%	16V
C206	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C207	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C208	1-128-004-11	ELECT CHIP	10uF	20%	16V
C210	1-128-008-11	ELECT CHIP	3.3uF	20%	35V
C211	1-128-004-11	ELECT CHIP	10uF	20%	16V
C212	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C213	1-128-008-11	ELECT CHIP	3.3uF	20%	35V
C214	1-162-950-11	CERAMIC CHIP	56PF	5%	50V
C215	1-128-004-11	ELECT CHIP	10uF	20%	16V
C216	1-126-607-11	ELECT CHIP	47uF	20%	4V
C218	1-126-209-11	ELECT CHIP	100uF	20%	4V
C219	1-162-955-11	CERAMIC CHIP	150PF	5%	50V
C220	1-162-944-11	CERAMIC CHIP	18PF	5%	50V
C221	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C222	1-162-948-11	CERAMIC CHIP	39PF	5%	50V
C224	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C225	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C226	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C227	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C228	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C229	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C230	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C231	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C232	1-162-638-11	CERAMIC CHIP	1uF		16V
C233	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C234	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C235	1-128-004-11	ELECT CHIP	10uF	20%	16V
C236	1-162-950-11	CERAMIC CHIP	56PF	5%	50V
C237	1-128-004-11	ELECT CHIP	10uF	20%	16V
C238	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C239	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C240	1-128-004-11	ELECT CHIP	10uF	20%	16V
C242	1-128-003-11	ELECT CHIP	22uF	20%	4V
C246	1-128-003-11	ELECT CHIP	22uF	20%	4V
C247	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C248	1-128-004-11	ELECT CHIP	10uF	20%	16V
C249	1-128-004-11	ELECT CHIP	10uF	20%	16V
C250	1-128-004-11	ELECT CHIP	10uF	20%	16V
C251	1-128-004-11	ELECT CHIP	10uF	20%	16V

Ref. No.	Part No.	Description			Remark
C252	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C253	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C254	1-128-004-11	ELECT CHIP	10uF	20%	16V
C255	1-128-006-11	ELECT CHIP	4.7uF	20%	25V
C256	1-126-246-11	ELECT CHIP	220uF	20%	4V
C257	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C258	1-128-004-11	ELECT CHIP	10uF	20%	16V
C259	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C262	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C263	1-126-207-11	ELECT CHIP	33uF	20%	4V
C264	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C265	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C267	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C268	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C269	1-128-004-11	ELECT CHIP	10uF	20%	16V
C270	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C271	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C273	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C274	1-128-004-11	ELECT CHIP	10uF	20%	16V
C275	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C276	1-128-004-11	ELECT CHIP	10uF	20%	16V
C277	1-162-942-11	CERAMIC CHIP	12PF	5%	50V
C278	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C279	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C280	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C284	1-128-004-11	ELECT CHIP	10uF	20%	16V
C285	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C286	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C287	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C288	1-128-292-11	ELECT	220uF	20%	10V
C289	1-162-950-11	CERAMIC CHIP	56PF	5%	50V
C301	1-162-944-11	CERAMIC CHIP	18PF	5%	50V
C302	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C303	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C305	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C306	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C307	1-128-004-11	ELECT CHIP	10uF	20%	16V
C308	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C309	1-135-176-21	TANTALUM CHIP	0.68uF	10%	20V
C310	1-128-013-11	ELECT CHIP	1uF	20%	50V
C311	1-128-013-11	ELECT CHIP	1uF	20%	50V
C312	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C315	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C316	1-128-004-11	ELECT CHIP	10uF	20%	16V
C317	1-128-004-11	ELECT CHIP	10uF	20%	16V
C318	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C319	1-164-217-11	CERAMIC CHIP	150PF	0.25PF	50V
C320	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C321	1-162-949-11	CERAMIC CHIP	47PF	5%	50V

Ref. No.	Part No.	Description			Remark
C322	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C323	1-162-952-11	CERAMIC CHIP	82PF	5%	50V
C324	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C325	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C326	1-162-954-11	CERAMIC CHIP	120PF	5%	50V
C327	1-162-951-11	CERAMIC CHIP	68PF	5%	50V
C328	1-162-950-11	CERAMIC CHIP	56PF	5%	50V
C329	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C333	1-162-941-11	CERAMIC CHIP	10PF	0.5PF	50V
C334	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C335	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C338	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C339	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C340	1-162-937-11	CERAMIC CHIP	6PF	0.5PF	50V
C342	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C352	1-128-013-11	ELECT CHIP	1uF	20%	50V
C353	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C354	1-128-006-11	ELECT CHIP	4.7uF	20%	25V
C355	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C357	1-128-004-11	ELECT CHIP	10uF	20%	16V
C358	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C359	1-163-118-00	CERAMIC CHIP	110PF	5%	50V
C360	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C361	1-128-007-11	ELECT CHIP	2.2uF	20%	35V
C362	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C363	1-164-145-11	CERAMIC CHIP	390PF	5%	50V
C364	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C365	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C366	1-162-936-11	CERAMIC CHIP	5PF	0.25PF	50V
C367	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C368	1-162-943-11	CERAMIC CHIP	15PF	5%	50V
C370	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C371	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C400	1-162-971-11	CERAMIC CHIP	0.001uF 50V (Australian)		
C402	1-162-971-11	CERAMIC CHIP	0.001uF		50V
C403	1-162-971-11	CERAMIC CHIP	0.001uF		50V
C405	1-162-971-11	CERAMIC CHIP	0.001uF		50V
C406	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C407	1-128-006-11	ELECT CHIP	4.7uF	20%	25V
C408	1-124-779-00	ELECT CHIP	10uF	20%	16V
C409	1-128-006-11	ELECT CHIP	4.7uF	20%	25V
C410	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C411	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C412	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C413	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C414	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C416	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C417	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C418	1-164-156-11	CERAMIC CHIP	0.1uF		25V

Ref. No.	Part No.	Description	Remark
C419	1-126-205-11	ELECT CHIP 47uF 20%	6.3V
C421	1-162-965-11	CERAMIC CHIP 0.0015uF 10%	50V
C422	1-162-638-11	CERAMIC CHIP 1uF	16V
C423	1-162-949-11	CERAMIC CHIP 47PF 5%	50V
C424	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C427	1-162-969-11	CERAMIC CHIP 0.0068uF 10%	25V
C429	1-128-013-11	ELECT CHIP 1uF 20%	50V
C430	1-126-607-11	ELECT CHIP 47uF 20%	4V
C431	1-126-205-11	ELECT CHIP 47uF 20%	6.3V
C432	1-128-003-11	ELECT CHIP 22uF 20%	4V
C434	1-128-004-11	ELECT CHIP 10uF 20%	16V
C435	1-128-013-11	ELECT CHIP 1uF 20%	50V
C436	1-128-006-11	ELECT CHIP 4.7uF 20%	25V
C437	1-162-957-11	CERAMIC CHIP 220PF 5%	50V
C439	1-128-013-11	ELECT CHIP 1uF 20%	50V
C441	1-162-637-11	CERAMIC CHIP 0.47uF 16V	(Australian)
C469	1-162-966-11	CERAMIC CHIP 0.0022uF 10%	50V
C615	1-162-950-11	CERAMIC CHIP 56PF 5%	50V
C620	1-162-954-11	CERAMIC CHIP 0.001uF 10%	50V
C620			(Australian)

< FILTER >

Ref. No.	Part No.	Description	Remark
CF301	1-577-162-11	FILTER, CERAMIC	

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CN401	* 1-566-761-11	PIN, CONNECTOR (PC BOARD) 6P	
CN506	1-569-486-11	CONNECTOR, BOARD TO BOARD 16P	
CN507	1-569-485-11	CONNECTOR, BOARD TO BOARD 20P	
CN508	1-569-478-21	CONNECTOR, FPC 20P	
CN601	* 1-566-764-11	PIN, CONNECTOR (PC BOARD) 9P	
CN703	1-568-359-41	CONNECTOR, BOARD TO BOARD 20P	
CN704	1-569-363-21	CONNECTOR, FPC 15P	
CN901	1-566-524-21	CONNECTOR, FPC (ZIF) 8P	

< DIODE >

Ref. No.	Part No.	Description	Remark
D101	8-719-800-76	DIODE 1SS226	
D202	8-719-941-86	DIODE DAN202U	
D203	8-719-941-86	DIODE DAN202U	
D205	8-719-941-86	DIODE DAN202U	
D208	8-719-941-86	DIODE DAN202U	
D209	8-719-941-86	DIODE DAN202U	
D210	8-719-404-46	DIODE MA110	
D214	8-719-940-45	DIODE DWA010	
D215	8-719-404-46	DIODE MA110	
D216	8-719-404-46	DIODE MA110	
D217	8-719-801-41	DIODE 1SS196	
D351	8-719-404-46	DIODE MA110	

< FILTER >

Ref. No.	Part No.	Description	Remark
FL201	1-236-751-21	FILTER, LOW PASS	
FL202	1-415-764-21	DELAY LINE, LC	
FL203	1-236-848-21	FILTER, LOW PASS	
FL204	1-415-818-11	DELAY LINE, LC (Y)	
FL205	1-239-055-21	FILTER, LOW PASS (CCD.PAL.Y)	
FL301	1-236-849-21	FILTER, BAND PASS	
FL302	1-236-186-11	FILTER, BAND PASS	
FL303	1-236-850-21	FILTER, BAND PASS	

< IC >

Ref. No.	Part No.	Description	Remark
IC001	8-759-999-02	IC TL1596CDSB	
IC201	8-752-036-19	IC CXA1207R	
IC202	8-752-333-24	IC CXL1506M	
IC203	8-752-036-20	IC CXA1208R	
IC204	8-759-605-61	IC CXA1203N	
IC205	8-759-710-29	IC NJM2235M	
IC206	8-759-320-76	IC HA118070FP	
IC400	8-759-823-20	IC CXA-1488R	

< COIL >

Ref. No.	Part No.	Description	Remark
L101	1-412-032-11	INDUCTOR, CHIP 100uH	
L102	1-412-280-31	INDUCTOR 330uH	
L103	1-410-167-41	INDUCTOR, CHIP 820uH	
L105	1-410-657-21	INDUCTOR, CHIP 180uH	
L106	1-410-387-11	INDUCTOR, CHIP 33uH	
L109	1-410-381-11	INDUCTOR, CHIP 10uH	
L110	1-410-658-31	INDUCTOR, CHIP 220uH	
L122	1-410-658-31	INDUCTOR, CHIP 220uH	
L123	1-410-655-31	INDUCTOR, CHIP 120uH	
L124	1-412-280-31	INDUCTOR 330uH	
L125	1-410-380-31	INDUCTOR, CHIP 8.2uH	
L126	1-412-032-11	INDUCTOR, CHIP 100uH	
L129	1-412-026-11	INDUCTOR, CHIP 1uH	
L171	1-410-392-11	INDUCTOR, CHIP 82uH	
L181	1-412-026-11	INDUCTOR, CHIP 1uH	
L201	1-410-390-11	INDUCTOR, CHIP 56uH	
L203	1-410-370-31	INDUCTOR, CHIP 1.2uH	
L204	1-410-391-11	INDUCTOR, CHIP 68uH	
L205	1-412-031-11	INDUCTOR, CHIP 47uH	
L206	1-412-031-11	INDUCTOR, CHIP 47uH	
L209	1-412-031-11	INDUCTOR, CHIP 47uH	
L210	1-410-393-11	INDUCTOR, CHIP 100uH	
L211	1-410-375-11	INDUCTOR, CHIP 3.3uH	
L212	1-410-379-21	INDUCTOR, CHIP 6.8uH	
L214	1-410-377-31	INDUCTOR, CHIP 4.7uH	
L301	1-410-393-11	INDUCTOR, CHIP 100uH	
L302	1-410-386-11	INDUCTOR, CHIP 27uH	

Ref. No.	Part No.	Description	Remark
L304	1-410-393-11	INDUCTOR, CHIP 100uH	
L305	1-410-393-11	INDUCTOR, CHIP 100uH	
L306	1-410-655-31	INDUCTOR, CHIP 120uH	
L307	1-410-656-11	INDUCTOR, CHIP 150uH	
L309	1-410-379-21	INDUCTOR, CHIP 6.8uH	
L400	1-410-384-31	INDUCTOR, CHIP 18uH	
		< TRANSISTOR >	
Q001	8-729-905-23	TRANSISTOR 2SA1576-R	
Q002	8-729-905-35	TRANSISTOR 2SC4081-R	
Q060	8-729-905-18	TRANSISTOR DTC144EU	
Q061	8-729-905-18	TRANSISTOR DTC144EU	
Q062	8-729-905-18	TRANSISTOR DTC144EU	
Q063	8-729-905-12	TRANSISTOR DTA144EU	
Q101	8-729-905-23	TRANSISTOR 2SA1576-R	
Q102	8-729-905-18	TRANSISTOR DTC144EU	
Q105	8-729-905-35	TRANSISTOR 2SC4081-R	
Q106	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q107	8-729-905-12	TRANSISTOR DTA144EU	
Q109	8-729-905-35	TRANSISTOR 2SC4081-R	
Q115	8-729-905-23	TRANSISTOR 2SA1576-R	
Q116	8-729-905-18	TRANSISTOR DTC144EU	
Q119	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q121	8-729-905-23	TRANSISTOR 2SA1576-R	
Q122	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q123	8-729-905-35	TRANSISTOR 2SC4081-R	
Q140	8-729-905-12	TRANSISTOR DTA144EU	
Q141	8-729-905-35	TRANSISTOR 2SC4081-R	
Q142	8-729-141-48	TRANSISTOR 2SB624-BV345	
Q154	8-729-905-35	TRANSISTOR 2SC4081-R	
Q171	8-729-905-35	TRANSISTOR 2SC4081-R	
Q172	8-729-905-35	TRANSISTOR 2SC4081-R	
Q191	8-729-905-35	TRANSISTOR 2SC4081-R	
Q192	8-729-905-18	TRANSISTOR DTC144EU	
Q195	8-729-905-12	TRANSISTOR DTA144EU	
Q196	8-729-905-18	TRANSISTOR DTC144EU	
Q201	8-729-905-35	TRANSISTOR 2SC4081-R	
Q202	8-729-905-12	TRANSISTOR DTA144EU	
Q203	8-729-905-23	TRANSISTOR 2SA1576-R	
Q204	8-729-905-35	TRANSISTOR 2SC4081-R	
Q206	8-729-905-35	TRANSISTOR 2SC4081-R	
Q209	8-729-905-18	TRANSISTOR DTC144EU	
Q210	8-729-905-23	TRANSISTOR 2SA1576-R	
Q211	8-729-905-35	TRANSISTOR 2SC4081-R	
Q212	8-729-905-35	TRANSISTOR 2SC4081-R	
Q215	8-729-905-23	TRANSISTOR 2SA1576-R	
Q220	8-729-141-48	TRANSISTOR 2SB624-BV345	
Q221	8-729-905-18	TRANSISTOR DTC144EU	
Q222	8-729-905-12	TRANSISTOR DTA144EU	
Q223	8-729-905-35	TRANSISTOR 2SC4081-R	

Ref. No.	Part No.	Description	Remark
Q224	8-729-905-35	TRANSISTOR 2SC4081-R	
Q225	8-729-905-12	TRANSISTOR DTA144EU	
Q226	8-729-905-35	TRANSISTOR 2SC4081-R	
Q227	8-729-905-35	TRANSISTOR 2SC4081-R	
Q228	8-729-905-23	TRANSISTOR 2SA1576-R	
Q229	8-729-905-35	TRANSISTOR 2SC4081-R	
Q231	8-729-905-35	TRANSISTOR 2SC4081-R	
Q232	8-729-905-35	TRANSISTOR 2SC4081-R	
Q238	8-729-905-23	TRANSISTOR 2SA1576-R	
Q240	8-729-905-35	TRANSISTOR 2SC4081-R	
Q241	8-729-905-23	TRANSISTOR 2SA1576-R	
Q243	8-729-905-18	TRANSISTOR DTC144EU	
Q244	8-729-905-18	TRANSISTOR DTC144EU	
Q245	8-729-905-XX	TRANSISTOR DTC114TUT106	
Q246	8-729-905-XX	TRANSISTOR DTC114TUT106	
Q247	8-729-905-XX	TRANSISTOR DTC114TUT106	
Q248	8-729-905-18	TRANSISTOR DTC144EU	
Q250	8-729-905-35	TRANSISTOR 2SC4081-R	
Q251	8-729-905-18	TRANSISTOR DTC144EU	
Q301	8-729-905-23	TRANSISTOR 2SA1576-R	
Q303	8-729-905-35	TRANSISTOR 2SC4081-R	
Q310	8-729-905-35	TRANSISTOR 2SC4081-R	
Q311	8-729-905-35	TRANSISTOR 2SC4081-R	
Q351	8-729-905-35	TRANSISTOR 2SC4081-R	
Q352	8-729-905-35	TRANSISTOR 2SC4081-R	
Q353	8-729-905-35	TRANSISTOR 2SC4081-R	
Q354	8-729-905-35	TRANSISTOR 2SC4081-R	
Q356	8-729-905-18	TRANSISTOR DTC144EU	
Q357	8-729-905-12	TRANSISTOR DTA144EU	
Q358	8-729-905-18	TRANSISTOR DTC144EU	
Q359	8-729-102-08	TRANSISTOR 2SC2223-F14	
Q360	8-729-905-18	TRANSISTOR DTC144EU	
Q362	8-729-905-18	TRANSISTOR DTC144EU	
Q400	8-729-905-18	TRANSISTOR DTC144EU	
Q404	8-729-904-07	TRANSISTOR FMG2	
		< RESISTOR >	
R001	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R002	1-216-842-11	METAL CHIP 56K 5% 1/16W	
R003	1-216-817-11	METAL CHIP 470 5% 1/16W	
R004	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R005	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R006	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R011	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R012	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R019	1-216-809-11	METAL CHIP 100 5% 1/16W	
R020	1-216-818-11	METAL CHIP 560 5% 1/16W	
R025	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R032	1-216-864-11	METAL CHIP 0	

VA-67P

Ref. No.	Part No.	Description				Remark
R034	1-216-864-11	METAL CHIP	0			
R036	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R041	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R042	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R043	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R044	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R045	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R046	1-216-864-11	METAL CHIP	0			
R051	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R052	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R053	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R060	1-216-864-11	METAL CHIP	0			
R061	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R062	1-216-847-11	METAL CHIP	150K	5%	1/16W	
R063	1-216-847-11	METAL CHIP	150K	5%	1/16W	
R065	1-216-817-11	METAL CHIP	470	5%	1/16W	
R066	1-216-809-11	METAL CHIP	100	5%	1/16W	
R071	1-216-661-11	METAL CHIP	2.7K	0.5%	1/10W	
R072	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R073	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R074	1-216-809-11	METAL CHIP	100	5%	1/16W	
R076	1-216-864-11	METAL CHIP	0			(AEP/UK)
R087	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R088	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R089	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R090	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R093	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R097	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R099	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R101	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R102	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R103	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R104	1-216-811-11	METAL CHIP	150	5%	1/16W	
R108	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R109	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R110	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R111	1-216-819-11	METAL CHIP	680	5%	1/16W	
R112	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R113	1-216-814-11	METAL CHIP	270	5%	1/16W	
R114	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R115	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R116	1-216-817-11	METAL CHIP	470	5%	1/16W	
R117	1-216-808-11	METAL CHIP	82	5%	1/16W	
R118	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R119	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R120	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R124	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R125	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R126	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R127	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R128	1-216-864-11	METAL CHIP	0			
R132	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R133	1-216-818-11	METAL CHIP	560	5%	1/16W	
R134	1-216-818-11	METAL CHIP	560	5%	1/16W	
R141	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R142	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R158	1-216-818-11	METAL CHIP	560	5%	1/16W	
R159	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R160	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R161	1-216-817-11	METAL CHIP	470	5%	1/16W	
R162	1-216-817-11	METAL CHIP	470	5%	1/16W	
R163	1-216-813-11	METAL CHIP	220	5%	1/16W	
R164	1-216-817-11	METAL CHIP	470	5%	1/16W	
R165	1-216-809-11	METAL CHIP	100	5%	1/16W	
R166	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R167	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R168	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R170	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	
R171	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R172	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R173	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R174	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R175	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R176	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R178	1-216-818-11	METAL CHIP	560	5%	1/16W	
R181	1-216-804-11	METAL CHIP	39	5%	1/16W	
R182	1-216-804-11	METAL CHIP	39	5%	1/16W	
R183	1-216-807-11	METAL CHIP	68	5%	1/16W	
R184	1-216-138-00	METAL CHIP	3.3	5%	1/8W	
R185	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R186	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R187	1-216-820-11	METAL CHIP	820	5%	1/16W	
R188	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R191	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R192	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R193	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R196	1-216-864-11	METAL CHIP	0			
R201	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R202	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R203	1-216-813-11	METAL CHIP	220	5%	1/16W	
R204	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R206	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R208	1-216-816-11	METAL CHIP	390	5%	1/16W	
R209	1-216-814-11	METAL CHIP	270	5%	1/16W	
R210	1-216-819-11	METAL CHIP	680	5%	1/16W	
R211	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R212	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R213	1-216-817-11	METAL CHIP	470	5%	1/16W	
R214	1-216-820-11	METAL CHIP	820	5%	1/16W	

Ref. No.	Part No.	Description			Remark
R215	1-216-817-11	METAL CHIP	470	5%	1/16W
R216	1-216-817-11	METAL CHIP	470	5%	1/16W
R219	1-216-833-11	METAL CHIP	10K	5%	1/16W
R220	1-216-810-11	METAL CHIP	120	5%	1/16W
R221	1-216-844-11	METAL CHIP	82K	5%	1/16W
R222	1-216-857-11	METAL CHIP	1M	5%	1/16W
R225	1-216-839-11	METAL CHIP	33K	5%	1/16W
R226	1-216-817-11	METAL CHIP	470	5%	1/16W
R227	1-216-049-00	METAL CHIP	1K	5%	1/10W
R228	1-216-842-11	METAL CHIP	56K	5%	1/16W
R229	1-216-821-11	METAL CHIP	1K	5%	1/16W
R230	1-216-838-11	METAL CHIP	27K	5%	1/16W
R231	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R232	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R233	1-216-821-11	METAL CHIP	1K	5%	1/16W
R234	1-216-821-11	METAL CHIP	1K	5%	1/16W
R235	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R236	1-216-821-11	METAL CHIP	1K	5%	1/16W
R237	1-216-821-11	METAL CHIP	1K	5%	1/16W
R239	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R242	1-216-864-11	METAL CHIP	0		
R244	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R245	1-216-833-11	METAL CHIP	10K	5%	1/16W
R246	1-216-833-11	METAL CHIP	10K	5%	1/16W
R247	1-216-833-11	METAL CHIP	10K	5%	1/16W
R248	1-216-841-11	METAL CHIP	47K	5%	1/16W
R249	1-216-821-11	METAL CHIP	1K	5%	1/16W
R250	1-216-821-11	METAL CHIP	1K	5%	1/16W
R251	1-216-845-11	METAL CHIP	100K	5%	1/16W
R252	1-216-853-11	METAL CHIP	470K	5%	1/16W
R255	1-216-833-11	METAL CHIP	10K	5%	1/16W
R256	1-216-833-11	METAL CHIP	10K	5%	1/16W
R257	1-216-821-11	METAL CHIP	1K	5%	1/16W
R258	1-216-821-11	METAL CHIP	1K	5%	1/16W
R259	1-216-833-11	METAL CHIP	10K	5%	1/16W
R260	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R261	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R262	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R263	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R265	1-216-643-11	METAL CHIP	470	0.5%	1/10W
R267	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R268	1-218-708-11	METAL CHIP	4.7K	0.50%	1/16W
R269	1-218-688-11	METAL CHIP	680	0.50%	1/16W
R270	1-218-706-11	METAL CHIP	3.9K	0.50%	1/16W
R272	1-216-817-11	METAL CHIP	470	5%	1/16W
R273	1-218-708-11	METAL CHIP	4.7K	0.50%	1/16W
R274	1-218-704-11	METAL CHIP	3.3K	0.50%	1/16W
R276	1-216-820-11	METAL CHIP	820	5%	1/16W
R278	1-216-820-11	METAL CHIP	820	5%	1/16W

Ref. No.	Part No.	Description			Remark
R280	1-216-841-11	METAL CHIP	47K	5%	1/16W
R281	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R282	1-216-833-11	METAL CHIP	10K	5%	1/16W
R283	1-216-833-11	METAL CHIP	10K	5%	1/16W
R284	1-216-864-11	METAL CHIP	0		
R285	1-216-821-11	METAL CHIP	1K	5%	1/16W
R286	1-216-811-11	METAL CHIP	150	5%	1/16W
R287	1-216-813-11	METAL CHIP	220	5%	1/16W
R288	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R290	1-216-815-11	METAL CHIP	330	5%	1/16W
R291	1-216-815-11	METAL CHIP	330	5%	1/16W
R292	1-216-820-11	METAL CHIP	820	5%	1/16W
R293	1-216-864-11	METAL CHIP	0		
R294	1-216-839-11	METAL CHIP	33K	5%	1/16W
R296	1-216-821-11	METAL CHIP	1K	5%	1/16W
R297	1-216-841-11	METAL CHIP	47K	5%	1/16W
R298	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R300	1-216-864-11	METAL CHIP	0		
R301	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R302	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R303	1-216-834-11	METAL CHIP	12K	5%	1/16W
R304	1-216-838-11	METAL CHIP	27K	5%	1/16W
R305	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R308	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R309	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R310	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R311	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R312	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R314	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R315	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R316	1-216-699-11	METAL CHIP	100K	0.5%	1/10W
R319	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R321	1-216-864-11	METAL CHIP	0		
R322	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R323	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R324	1-216-809-11	METAL CHIP	100	5%	1/16W
R325	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R326	1-216-821-11	METAL CHIP	1K	5%	1/16W
R331	1-216-864-11	METAL CHIP	0		
R332	1-216-817-11	METAL CHIP	470	5%	1/16W
R337	1-216-864-11	METAL CHIP	0		
R346	1-216-815-11	METAL CHIP	330	5%	1/16W
R347	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R348	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R350	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R351	1-216-845-11	METAL CHIP	100K	5%	1/16W
R352	1-216-845-11	METAL CHIP	100K	5%	1/16W
R353	1-216-845-11	METAL CHIP	100K	5%	1/16W
R354	1-216-864-11	METAL CHIP	0		

Ref. No.	Part No.	Description			Remark
R355	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R356	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R357	1-216-845-11	METAL CHIP	100K	5%	1/16W
R358	1-216-699-11	METAL CHIP	100K	0.5%	1/10W
R359	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R360	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R361	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R362	1-216-833-11	METAL CHIP	10K	5%	1/16W
R364	1-216-821-11	METAL CHIP	1K	5%	1/16W
R365	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R366	1-216-817-11	METAL CHIP	470	5%	1/16W
R367	1-216-833-11	METAL CHIP	10K	5%	1/16W
R368	1-216-821-11	METAL CHIP	1K	5%	1/16W
R369	1-216-839-11	METAL CHIP	33K	5%	1/16W
R370	1-216-821-11	METAL CHIP	1K	5%	1/16W
R371	1-216-821-11	METAL CHIP	1K	5%	1/16W
R372	1-216-821-11	METAL CHIP	1K	5%	1/16W
R373	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R374	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R375	1-216-839-11	METAL CHIP	33K	5%	1/16W
R376	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R389	1-216-190-00	METAL GLAZE	470	5%	1/8W
R390	1-216-839-11	METAL CHIP	33K	5%	1/16W
R391	1-216-837-11	METAL CHIP	22K	5%	1/16W
R392	1-216-837-11	METAL CHIP	22K	5%	1/16W
R393	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R394	1-216-833-11	METAL CHIP	10K	5%	1/16W
R395	1-216-833-11	METAL CHIP	10K	5%	1/16W
R396	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R397	1-216-841-11	METAL CHIP	47K	5%	1/16W
R398	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R400	1-216-864-11	METAL CHIP	0		
R405	1-216-825-11	METAL CHIP	2.2K	5%	1/16W (AEP/UK)
R407	1-216-841-11	METAL CHIP	47K	5%	1/16W
R408	1-216-837-11	METAL CHIP	22K	5%	1/16W
R409	1-216-843-11	METAL CHIP	68K	5%	1/16W
R412	1-216-833-11	METAL CHIP	10K	5%	1/16W
R413	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R415	1-216-837-11	METAL CHIP	22K	5%	1/16W
R416	1-216-859-11	METAL GLAZE	1.5M	5%	1/16W
R418	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R419	1-216-821-11	METAL CHIP	1K	5%	1/16W
R420	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R421	1-216-864-11	METAL CHIP	0		
R423	1-216-864-11	METAL CHIP	0		
R426	1-216-817-11	METAL CHIP	470	5%	1/16W
R427	1-216-807-11	METAL CHIP	68	5%	1/16W
R428	1-216-817-11	METAL CHIP	470	5%	1/16W
R429	1-216-839-11	METAL CHIP	33K	5%	1/16W
R430	1-216-833-11	METAL CHIP	10K	5%	1/16W
R432	1-216-864-11	METAL CHIP	0		
R433	1-216-864-11	METAL CHIP	0		
R434	1-216-836-11	METAL CHIP	18K	5%	1/16W (Australian)
R435	1-216-841-11	METAL CHIP	47K	5%	1/16W (Australian)
R459	1-216-864-11	METAL CHIP	0		
R466	1-216-841-11	METAL CHIP	47K	5%	1/16W
R483	1-216-864-11	METAL CHIP	0		
R485	1-216-864-11	METAL CHIP	0		
R486	1-216-841-11	METAL CHIP	47K	5%	1/16W
R490	1-216-864-11	METAL CHIP	0		
R491	1-216-841-11	METAL CHIP	47K	5%	1/16W
R602	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R606	1-216-864-11	METAL CHIP	0		
R607	1-216-864-11	METAL CHIP	0		
R608	1-216-833-11	METAL CHIP	10K	5%	1/16W
R621	1-216-864-11	METAL CHIP	0		
R624	1-216-864-11	METAL CHIP	0		
R630	1-216-864-11	METAL CHIP	0		
R636	1-216-821-11	METAL CHIP	1K	5%	1/16W

< VARIABLE RESISTOR >

RV101	1-238-087-11	RES, ADJ, CERMET 1K
RV201	1-238-091-11	RES, ADJ, CERMET 22K
RV202	1-238-087-11	RES, ADJ, CERMET 1K
RV203	1-238-088-11	RES, ADJ, CERMET 2.2K
RV204	1-238-087-11	RES, ADJ, CERMET 1K
RV205	1-238-091-11	RES, ADJ, CERMET 22K
RV206	1-238-088-11	RES, ADJ, CERMET 2.2K
RV207	1-238-089-11	RES, ADJ, CERMET 4.7K
RV210	1-238-088-11	RES, ADJ, CERMET 2.2K
RV211	1-238-092-11	RES, ADJ, CERMET 47K
RV301	1-238-086-11	RES, ADJ, CERMET 470
RV351	1-238-090-11	RES, ADJ, CERMET 10K
RV353	1-238-087-11	RES, ADJ, CERMET 1K
RV400	1-238-090-11	RES, ADJ, CERMET 10K
RV401	1-238-090-11	RES, ADJ, CERMET 10K

< SWITCH >

S201	1-572-275-11	SWITCH, SLIDE (IN/OUT) (Australian)

< THERMISTOR >

TH001	1-809-357-21	THERMISTOR

< FLEXIBLE BOARD >

W702	1-633-976-11	FP-251 FLEXIBLE BOARD

< CRYSTAL >

X301	1-577-117-21	VIBRATOR, CRYSTAL (4.43MHz)

Ref. No.	Part No.	Description			Remark
	* A-7062-678-A	VC-94P BOARD, COMPLETE			
		**********************			
		(Ref.No 1,000 Series)			

< CAPACITOR >

Ref. No.	Part No.	Description			Remark
C301	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C302	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C401	1-164-634-11	CERAMIC CHIP	1uF		16V
C402	1-164-634-11	CERAMIC CHIP	1uF		16V
C403	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C404	1-164-634-11	CERAMIC CHIP	1uF		16V
C406	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C407	1-164-634-11	CERAMIC CHIP	1uF		16V
C408	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C409	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C410	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C411	1-124-566-11	ELECT	120uF	20%	6.3V
C412	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C413	1-164-634-11	CERAMIC CHIP	1uF		16V
C414	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C415	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C416	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C417	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C419	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C501	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C502	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C503	1-164-634-11	CERAMIC CHIP	1uF		16V
C504	1-128-292-11	ELECT	220uF	20%	10V
C506	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C507	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C508	1-135-072-21	TANTALUM CHIP	0.22uF	10%	35V
C509	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C510	1-128-004-11	ELECT CHIP	10uF	20%	16V
C511	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C512	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C513	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C514	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C521	1-162-638-11	CERAMIC CHIP	1uF		16V
C651	1-126-217-11	ELECT CHIP	15uF	20%	10V
C654	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C655	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C656	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C657	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C658	1-128-004-11	ELECT CHIP	10uF	20%	16V
C659	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C660	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C661	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C662	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C663	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V
C664	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C665	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C666	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C667	1-164-156-11	CERAMIC CHIP	0.1uF		25V

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CN301	1-568-338-11	CONNECTOR, BOARD TO BOARD 24P	
CN302	1-568-331-11	CONNECTOR, BOARD TO BOARD 10P	
CN303	1-566-534-11	CONNECTOR, FPC (ZIF) 18P	
CN304	1-565-877-11	PIN, CONNECTOR (PC BOARD) 5P	
CN305	1-566-528-21	CONNECTOR, FPC (ZIF) 12P	
CN306	1-565-528-21	PIN, CONNECTOR (PC BOARD) 3P	
CN307	* 1-565-876-11	PIN, CONNECTOR (PC BOARD) 4P	
CN308	* 1-565-541-11	PIN, CONNECTOR (PC BOARD) 2P	
CN651	* 1-566-187-11	PIN, CONNECTOR (PC BOARD) 8P	
CN652	1-565-527-11	PIN, CONNECTOR (PC BOARD) 2P	
CN653	1-565-527-11	PIN, CONNECTOR (PC BOARD) 2P	
CN654	* 1-565-529-21	PIN, CONNECTOR (PC BOARD) 4P	
CN655	1-565-530-11	PIN, CONNECTOR (PC BOARD) 5P	

< DIODE >

Ref. No.	Part No.	Description		Remark
D501	8-719-404-46	DIODE	MA110	
D502	8-719-404-46	DIODE	MA110	
D503	8-719-404-46	DIODE	MA110	
D504	8-719-404-46	DIODE	MA110	
D600	8-719-420-90	DIODE	MA8051-M	

< FILTER >

Ref. No.	Part No.	Description	Remark
FL001	1-236-833-11	FILTER, LOW PASS	
FL301	1-236-834-21	FILTER, LOW PASS	
FL302	1-415-751-21	DELAY LINE, LC (YH)	
FL303	1-415-819-11	DELAY LINE, LC	
FL401	1-415-775-21	DELAY LINE, LC	

< HIC >

Ref. No.	Part No.	Description	Remark
HIC301	A-7068-192-A	HIC MX-10 BOARD, COMPLETE	

< IC >

Ref. No.	Part No.	Description		Remark
IC301	8-759-946-00	IC	MB88341PFV	
IC401	8-752-038-XX	IC	CXA1392R	
IC501	8-759-038-86	IC	MC68HC11E9FU-SC400225	
IC502	8-759-008-95	IC	MC14028BF	
IC504	8-759-635-27	IC	M62352GP	
IC508	8-759-937-56	IC	S-8054ALB-LM-S	
IC509	8-759-509-05	IC	XRU4066BF	
IC510	8-759-998-96	IC	LM324D	
IC651	8-759-981-82	IC	RC3414M	
IC652	8-759-037-20	IC	MPC1737M	
IC653	8-759-998-98	IC	LM358D	

Ref. No.	Part No.	Description	Remark
IC656	8-759-998-96	IC LM324D	
		< COIL >	
L401	1-410-391-11	INDUCTOR CHIP 68uH	
L502	1-412-058-11	INDUCTOR CHIP 10uH	
L503	1-412-062-11	INDUCTOR CHIP 47uH	
		< TRANSISTOR >	
Q301	8-729-905-23	TRANSISTOR 2SA1576-R	
Q302	8-729-905-23	TRANSISTOR 2SA1576-R	
Q303	8-729-402-84	TRANSISTOR XN4601	
Q401	8-729-402-84	TRANSISTOR XN4601	
Q402	8-729-402-84	TRANSISTOR XN4601	
Q403	8-729-905-23	TRANSISTOR 2SA1576-R	
Q404	8-729-905-35	TRANSISTOR 2SC4081-R	
Q502	8-729-420-50	TRANSISTOR UN5215	
Q504	8-729-403-10	TRANSISTOR XN6215	
Q505	8-729-403-10	TRANSISTOR XN6215	
Q506	8-729-420-07	TRANSISTOR XN6213	
Q507	8-729-420-50	TRANSISTOR UN5215	
Q508	8-729-402-78	TRANSISTOR XN6401	
Q509	8-729-403-10	TRANSISTOR XN6215	
Q510	8-729-905-35	TRANSISTOR 2SC4081-R	
Q513	8-729-402-84	TRANSISTOR XN4601	
Q516	8-729-905-35	TRANSISTOR 2SC4081-R	
Q651	8-729-905-23	TRANSISTOR 2SA1576-R	
Q653	8-729-106-60	TRANSISTOR 2SB1115A	
Q654	8-729-905-35	TRANSISTOR 2SC4081-R	
Q655	8-729-905-35	TRANSISTOR 2SC4081-R	
Q656	8-729-905-35	TRANSISTOR 2SC4081-R	
Q657	8-729-402-84	TRANSISTOR XN4601	
Q658	8-729-402-84	TRANSISTOR XN4601	
Q659	8-729-821-88	TRANSISTOR 2SK1332-3	
		< RESISTOR >	
R301	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R302	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R303	1-216-864-11	METAL CHIP 0	
R304	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R307	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R310	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R311	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R312	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R313	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R314	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R315	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R316	1-216-842-11	METAL CHIP 56K 5% 1/16W	
R317	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R318	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R321	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R322	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R325	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R328	1-216-864-11	METAL CHIP 0	
R329	1-216-864-11	METAL CHIP 0	
R402	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R406	1-216-864-11	METAL CHIP 0	
R407	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R410	1-216-864-11	METAL CHIP 0	
R414	1-216-864-11	METAL CHIP 0	
R415	1-216-820-11	METAL CHIP 820 5% 1/16W	
R416	1-216-816-11	METAL CHIP 390 5% 1/16W	
R417	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R418	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R419	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R420	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R421	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R422	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R427	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R428	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R429	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R432	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R435	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R437	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R440	1-216-864-11	METAL CHIP 0	
R501	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R502	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R503	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R504	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R505	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R508	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R509	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R510	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R511	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R513	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R514	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R515	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R517	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R518	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R519	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R521	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R522	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R523	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R524	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R525	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R526	1-216-847-11	METAL CHIP 150K 5% 1/16W	
R527	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R528	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R529	1-216-845-11	METAL CHIP 100K 5% 1/16W	

Ref. No.	Part No.	Description			Remark
R530	1-216-845-11	METAL CHIP	100K	5%	1/16W
R531	1-216-833-11	METAL CHIP	10K	5%	1/16W
R532	1-216-833-11	METAL CHIP	10K	5%	1/16W
R533	1-216-833-11	METAL CHIP	10K	5%	1/16W
R534	1-216-837-11	METAL CHIP	22K	5%	1/16W
R535	1-216-825-11	METAL CHIP	2. 2K	5%	1/16W
R536	1-216-823-11	METAL CHIP	1. 5K	5%	1/16W
R537	1-216-845-11	METAL CHIP	100K	5%	1/16W
R546	1-216-829-11	METAL CHIP	4. 7K	5%	1/16W
R547	1-216-829-11	METAL CHIP	4. 7K	5%	1/16W
R560	1-216-833-11	METAL CHIP	10K	5%	1/16W
R561	1-216-864-11	METAL CHIP	0		
R562	1-216-833-11	METAL CHIP	10K	5%	1/16W
R645	1-216-839-11	METAL CHIP	33K	5%	1/16W
R646	1-216-841-11	METAL CHIP	47K	5%	1/16W
R647	1-216-832-11	METAL CHIP	8. 2K	5%	1/16W
R648	1-216-827-11	METAL CHIP	3. 3K	5%	1/16W
R649	1-216-309-00	METAL CHIP	5. 6	5%	1/10W
R650	1-216-833-11	METAL CHIP	10K	5%	1/16W
R652	1-216-835-11	METAL CHIP	15K	5%	1/16W
R653	1-216-835-11	METAL CHIP	15K	5%	1/16W
R654	1-216-843-11	METAL CHIP	68K	5%	1/16W
R655	1-216-834-11	METAL CHIP	12K	5%	1/16W
R656	1-216-134-00	METAL CHIP	2. 2	5%	1/8W
R659	1-216-821-11	METAL CHIP	1K	5%	1/16W
R660	1-216-836-11	METAL CHIP	18K	5%	1/16W
R661	1-216-821-11	METAL CHIP	1K	5%	1/16W
R662	1-216-815-11	METAL CHIP	330	5%	1/16W
R664	1-216-821-11	METAL CHIP	1K	5%	1/16W
R665	1-216-821-11	METAL CHIP	1K	5%	1/16W
R666	1-216-839-11	METAL CHIP	33K	5%	1/16W
R667	1-216-839-11	METAL CHIP	33K	5%	1/16W
R668	1-216-833-11	METAL CHIP	10K	5%	1/16W
R669	1-216-841-11	METAL CHIP	47K	5%	1/16W
R670	1-216-807-11	METAL CHIP	68	5%	1/16W
R671	1-216-848-11	METAL CHIP	180K	5%	1/16W
R672	1-216-848-11	METAL CHIP	180K	5%	1/16W
R673	1-216-830-11	METAL CHIP	5. 6K	5%	1/16W
R674	1-216-840-11	METAL CHIP	39K	5%	1/16W
R675	1-216-830-11	METAL CHIP	5. 6K	5%	1/16W
R676	1-216-830-11	METAL CHIP	5. 6K	5%	1/16W
R677	1-216-844-11	METAL CHIP	82K	5%	1/16W
R679	1-216-837-11	METAL CHIP	22K	5%	1/16W
R680	1-216-833-11	METAL CHIP	10K	5%	1/16W
R681	1-216-817-11	METAL CHIP	470	5%	1/16W
R682	1-216-833-11	METAL CHIP	10K	5%	1/16W
R683	1-216-857-11	METAL CHIP	1M	5%	1/16W
R684	1-216-823-11	METAL CHIP	1. 5K	5%	1/16W
R685	1-216-848-11	METAL CHIP	180K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R686	1-216-830-11	METAL CHIP	5. 6K	5%	1/16W
R687	1-216-833-11	METAL CHIP	10K	5%	1/16W
R688	1-216-841-11	METAL CHIP	47K	5%	1/16W
R689	1-216-843-11	METAL CHIP	68K	5%	1/16W
R690	1-216-839-11	METAL CHIP	33K	5%	1/16W
R694	1-216-848-11	METAL CHIP	180K	5%	1/16W
R698	1-216-837-11	METAL CHIP	22K	5%	1/16W
R699	1-216-827-11	METAL CHIP	3. 3K	5%	1/16W
R700	1-216-855-11	METAL CHIP	680K	5%	1/16W
R702	1-216-681-11	METAL CHIP	18K	0. 5%	1/10W
R703	1-216-677-11	METAL CHIP	12K	0. 5%	1/10W

< CRYSTAL >

X501	1-578-689-21	VIBRATOR (8MHz)

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* A-7062-278-A VF-26 BOARD, COMPLETE

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(Ref. No 6, 000 Series)

< CAPACITOR >

C901	1-126-369-11	ELECT	220uF	20%	6. 3V	
C902	1-163-038-00	CERAMIC CHIP	0. 1uF		25V	
C904	1-127-515-11	ELECT (SOLID)	47uF	20%	6. 3V	
C905	1-163-009-11	CERAMIC CHIP	0. 001uF	10%	50V	
C906	1-163-115-00	CERAMIC CHIP	82PF	5%	50V	
C907	⚠ 1-162-625-11	CERAMIC CHIP	0. 0047uF	5%	50V	
C908	⚠ 1-164-182-11	CERAMIC CHIP	0. 0033uF	10%	50V	
C909	1-126-193-11	ELECT	1uF	20%	50V	
C911	1-131-388-00	TANTALUM	68uF	10%	6. 3V	
C912	1-102-038-00	CERAMIC	0. 001uF			
C913	1-163-033-00	CERAMIC CHIP	0. 022uF		50V	
C915	1-126-193-11	ELECT	1uF	20%	50V	
C916	1-163-037-11	CERAMIC CHIP	0. 022uF	10%	25V	(TYPE 1)
C916	1-163-145-00	CERAMIC CHIP	0. 0015uF	5%	50V	(TYPE 2)
C917	1-135-162-21	TANTALUM CHIP	33uF	20%	6. 3V	(TYPE 2)
C917	1-135-166-21	TANTALUM CHIP	47uF	10%	10V	(TYPE 1)
C918	1-162-638-11	CERAMIC CHIP	1uF		16V	
C919	1-135-070-00	TANTALUM CHIP	0. 1uF	10%	35V	
C920	1-164-232-11	CERAMIC CHIP	0. 01uF		50V	

< CONNECTOR >

CN901	* 1-566-195-11	PIN. CONNECTOR (PC BOARD) 2P
CN902	* 1-566-195-11	PIN. CONNECTOR (PC BOARD) 2P
CN904	1-575-570-21	CONNECTOR, FPC/FFC 6P

< CONPOSITION CIRCUIT BLOCK >

CP901	1-238-119-11	RES, ADJ

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
		< SOCKET >	
CRT901	1-526-978-21	SOCKET ASSY, CRT	
		< DIODE >	
D670	8-719-404-46	DIODE MA110	
D903	8-719-400-20	DIODE MA152WA	
D955	8-719-404-19	DIODE LN1251C	
		< IC >	
IC901	8-759-420-01	IC AN2512S (TYPE 1)	
IC901	8-759-511-01	IC BA7147F (TYPE 2)	
		< COIL >	
L901	1-410-645-31	INDUCTOR 100uH	
L902	1-410-385-11	INDUCTOR CHIP 22uH	
L903	⚠ 1-459-858-11	COIL, FERRITE (HLC)	
		< TRANSISTOR >	
Q903	8-729-106-68	TRANSISTOR 2SD1615	
Q904	8-729-216-31	TRANSISTOR 2SA1163G	
		< RESISTOR >	
R902	1-216-051-00	METAL CHIP 1.2K 5% 1/10W (TYPE 1)	
R903	1-216-041-00	METAL CHIP 470 5% 1/10W	
R907	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R908	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R909	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R911	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R914	1-216-133-00	METAL CHIP 3.3M 5% 1/10W	
R915	1-216-133-00	METAL CHIP 3.3M 5% 1/10W	
R916	1-216-125-00	METAL CHIP 1.5M 5% 1/10W	
R917	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R919	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R920	1-216-111-00	METAL CHIP 390K 5% 1/10W (TYPE 2)	
R920	1-216-113-00	METAL CHIP 470K 5% 1/10W (TYPE 1)	
R921	1-216-011-00	METAL CHIP 27 5% 1/10W (TYPE 2)	
R921	1-216-013-00	METAL CHIP 33 5% 1/10W (TYPE 1)	
R922	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R923	1-216-025-00	METAL CHIP 100 5% 1/10W	
R924	1-216-306-11	METAL CHIP 3.9 5% 1/10W	
R925	1-216-334-11	METAL GLAZE 22K 1% 1/10W (TYPE 2)	
R925	1-216-336-11	METAL CHIP 47K 1% 1/10W (TYPE 1)	
R926	1-216-107-00	METAL CHIP 270K 5% 1/10W (TYPE 1)	
R926	1-218-165-11	METAL GLAZE 220K 1% 1/10W (TYPE 2)	
R928	1-216-870-11	METAL CHIP 180K 1% 1/10W	
R929	1-216-053-00	METAL CHIP 1.5K 5% 1/10W (TYPE 1)	
R929	1-216-073-00	METAL CHIP 10K 5% 1/10W (TYPE 2)	
R930	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R931	1-216-121-00	METAL CHIP 1M 5% 1/10W (TYPE 1)	
R950	1-216-041-00	METAL CHIP 470 5% 1/10W	
R951	1-216-295-00	METAL CHIP 0 5% 1/10W	
		< VARIABLE RESISTOR >	
RV901	1-238-647-11	RES, ADJ, METAL GLAZE 4.7M	
		< TRANSFORMER >	
T901	⚠ 1-439-428-11	TRANSFORMER ASSY, FLYBACK	
		< THERMISTOR >	
TH901	1-807-938-11	THERMISTOR	

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* A-7062-279-A VF-27 BOARD, COMPLETE

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(Ref.No 7,000 Series)

Ref. No.	Part No.	Description	Remark
		< CAPACITOR >	
C901	1-124-442-00	ELECT 330uF 20% 6.3V	
C903	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C904	1-126-160-11	ELECT 1uF 20% 50V	
C905	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C906	1-131-381-00	TANTALUM 47uF 10% 10V	
C907	1-162-638-11	CERAMIC CHIP 1uF 16V	
C908	1-136-165-00	FILM 0.1uF 5% 50V	
C909	1-163-109-00	CERAMIC CHIP 47PF 5% 50V	
C910	1-124-587-11	ELECT 220uF 20% 6.3V	
C911	1-163-141-00	CERAMIC CHIP 0.001uF 5% 50V	
C912	⚠ 1-162-625-11	CERAMIC CHIP 0.0047uF 5% 50V	
C913	⚠ 1-162-625-11	CERAMIC CHIP 0.0047uF 5% 50V	
C914	⚠ 1-163-209-00	CERAMIC CHIP 0.0015uF 5% 50V	
C915	1-126-090-11	ELECT 82uF 20% 10V	
C916	1-126-163-11	ELECT 4.7uF 20% 50V	
C918	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C919	1-102-038-00	CERAMIC 0.001uF	
		< CONNECTOR >	
CN902	* 1-566-195-11	PIN, CONNECTOR (PC BOARD) 2P	
CN903	* 1-566-195-11	PIN, CONNECTOR (PC BOARD) 2P	
CN904	1-575-570-21	CONNECTOR, FPC/FFC 6P	
		< DIODE >	
D903	8-719-400-20	DIODE MA152WA	
D955	8-719-404-19	DIODE LN1251C	
		< IC >	
IC901	8-759-420-01	IC AN2512S	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

< COIL >

Ref. No.	Part No.	Description	Remark
L901	1-410-831-21	INDUCTOR 82uH	
L902	1-408-977-21	INDUCTOR 39uH	
L903 ⚠	1-459-858-11	COIL, FERRITE (HLC)	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q903	8-729-216-31	TRANSISTOR 2SA1163	
Q904	8-729-100-66	TRANSISTOR 2SC1623	
Q905	8-729-106-68	TRANSISTOR 2SD1615	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R903	1-216-041-00	METAL CHIP 470 5% 1/10W	
R905	1-216-007-00	METAL CHIP 18 5% 1/10W	
R906	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R908	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R909	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R910	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R911	1-216-013-00	METAL CHIP 33 5% 1/10W	
R912	1-216-691-11	METAL CHIP 47K 0.5% 1/10W	
R913	1-216-107-00	METAL CHIP 270K 5% 1/10W	
R914	1-216-025-00	METAL CHIP 100 5% 1/10W	
R915	1-216-306-11	METAL CHIP 3.9 5% 1/10W	
R917	1-216-045-00	METAL CHIP 680 5% 1/10W	
R918	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R919	1-216-748-11	METAL CHIP 39K 5% 1/10W	
R920	1-216-748-11	METAL CHIP 39K 5% 1/10W	
R921	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R922	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R923	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R924	1-216-131-11	METAL CHIP 2.7M 5% 1/10W	
R925	1-216-131-11	METAL CHIP 2.7M 5% 1/10W	
R926	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R928	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R933	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R950	1-216-041-00	METAL CHIP 470 5% 1/10W	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description	Remark
RV901	1-230-873-11	RES, ADJ, METAL 47K	
RV902	1-230-866-11	RES, ADJ, METAL 470	
RV903	1-230-869-11	RES, ADJ, METAL 4.7K	
RV904	1-228-762-00	RES, ADJ, METAL GLAZE 1M	

< TRANSFORMER >

Ref. No.	Part No.	Description	Remark
T901 ⚠	1-439-431-11	TRANSFORMER ASSY, FLYBACK	

< THERMISTOR >

Ref. No.	Part No.	Description	Remark
TH901	1-807-938-11	THERMISTOR	

< SOCKET >

Ref. No.	Part No.	Description	Remark
W901	1-540-019-21	SOCKET ASSY, CRT	

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* A-7071-381-A VK-14P BOARD, COMPLETE (AEP/UK)
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(Ref. No 5,000 Series)
* A-7071-444-A VK-14P BOARD, COMPLETE (Australian)
****
(Ref. No 5,000 Series)

< DIODE >

Ref. No.	Part No.	Description	Remark
D508	8-719-420-33	DIODE MA151K	
D509	8-719-940-45	DIODE DWA010	
D523	8-719-977-34	DIODE DTZ12	
D524	8-719-977-34	DIODE DTZ12	
D526	8-719-977-34	DIODE DTZ12	
D527	8-719-977-34	DIODE DTZ12	
D530	8-719-404-46	DIODE MA110	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R502	1-216-029-00	METAL CHIP 150 5% 1/10W	

< SWITCH >

Ref. No.	Part No.	Description	Remark
S500	1-571-787-11	SWITCH, TACTILE (REW)	
S503	1-571-787-11	SWITCH, TACTILE (FF)	
S504	1-571-787-11	SWITCH, TACTILE (STOP)	
S505	1-571-787-11	SWITCH, TACTILE (PAUSE)	
S506	1-571-787-11	SWITCH, TACTILE (TIME (NEXT))	
S507	1-571-787-11	SWITCH, TACTILE (DATE (+))	
S508	1-571-787-11	SWITCH, TACTILE (DATA SCREEN)	
S509	1-571-787-11	SWITCH, TACTILE (AGE/EVENT)	
S510	1-572-284-11	SWITCH, SLIDE (REC) (Australian)	
S511	1-570-870-11	SWITCH, SLIDE (REC MODE, EDIT)	
S512	1-571-787-11	SWITCH, TACTIL (FRAME)	
S513	1-571-787-11	SWITCH, TACTILE (SLOW)	
S514	1-572-283-11	SWITCH, SLIDE (POWER)	
S515	1-571-787-11	SWITCH, TACTILE (ZERO MEM)	
S516	1-571-787-11	SWITCH, TACTILE (COUNTER RESET)	
S520	1-571-787-11	SWITCH, TACTILE (PB)	
S521	1-570-870-11	SWITCH, SLIDE (BEEP)	

< FLEXIBLE BOARD >

Ref. No.	Part No.	Description	Remark
W550	1-633-983-11	FP-296 FLEXIBLE BOARD	
W551	1-633-980-11	FP-308 FLEXIBLE BOARD	

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Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

MISCELLANEOUS
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Ref. No.	Part No.	Description	Remark
	1-569-286-11	CONNECTOR, CARD EDGE 5P (on the FP-249)	
71	1-542-125-21	MICROPHONE (C-2027)	
163	1-808-505-12	SENSOR (DEW)	
318	8-741-509-51	IC SBX1509-51(HIC RP-77 BOARD, COMPLETE)	
322	1-569-347-11	CONNECTOR, FPC (TRANSLATION) 13P	
353	1-547-357-12	FILTER BLOCK, OPTICAL	
364 ⚠·	1-466-230-21	CONVERTER UNIT, D/D	
401	1-547-422-11	LENS, ZOOM (VCL-8508XE)	
451	1-547-412-15	LENS, ZOOM (VCL-8508XF)	
BZ901	1-529-096-11	BUZZER, PIEZOELECTRIC	
IC101	8-752-606-04	IC ICX027CK-2 (CCD IMAGER) (Note 1)	
L901 ⚠·	1-451-310-21	DEFLECTION YOKE (B/W) (B TYPE)	
M902	8-835-331-01	MOTOR, DC U-22A (CAPSTAN)	
M903	A-7040-208-A	MOTOR ASSY, THREADING (LOADING)	
S901	1-572-286-31	SWITCH, PUSH (ZOOM)	
S903	1-571-099-11	SWITCH (CASSETTE DOWN)	
V901-1⚠·	1-546-085-11	CATHODE-RAY TUBE, B/W (M01KGG007WB) (B TYPE)	
V901-2⚠·	1-452-482-11	CRT ASSY (M91JYZ60WB) (A TYPE)	

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ACCESSORY & PACKING MATERIAL
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Ref. No.	Part No.	Description	Remark
	* 3-340-514-01	BAG, PROTECTION	
	* 3-744-867-01	CUSHION (UPPER)	
	* 3-744-868-01	CUSHION (LOWER)	
	3-752-959-11	MANUAL, INSTRUCTION (ENGLISH) (AEP/UK)	
	3-752-959-41	MANUAL, INSTRUCTION (FRENCH/GERMAN/SPANISH) (AEP)	
	3-752-959-51	MANUAL, INSTRUCTION (DUTCH/SWEDISH/ITALIAN) (AEP)	
	3-753-609-11	MANUAL, INSTRUCTION (ENGLISH) (Australian)	
	* 3-764-631-12	INSTRUCTION, DEW CONDENSATION (AEP)	

****

*** ACCESSORY & PACKING MATERIAL (KIT) ***
****

Ref. No.	Part No.	Description	Remark
	A-6767-707-A	RFU ADAPTOR (RFU-89EA) (UK)	
	A-6768-254-A	RFU ADAPTOR (RFU-90E) (AEP)	
	A-6768-255-A	RFU ADAPTOR (RFU-90AS) (Australian)	
	1-465-720-11	REMOTE COMMANDER (RMT-506)	
	1-571-164-11	SWITCH, ANTENNA CHANGE (CABLE) (UK)	
	3-712-673-01	SCREWDRIVER (UK)	
	* 3-741-532-01	CUSHION, ACC	
	* 3-744-971-31	INDIVIDUAL CARTON	
	3-941-737-01	BELT, SHOULDER	
	** AC-V60A	AC POWER ADAPTOR	
	*** NP-66	BATTERY PACK (AEP/UK)	
	*** NP-66H	BATTERY PACK (Australian)	

Note

** MARK PARTS IS AVAILABLE FOR REPAIR SERVICE.
*** MARK PARTS IS AVAILABLE AS AN OPTIONAL ACCESSORY.

****

HARDWARE LIST

# 1	7-621-281-15	SCREW +P 2X2
# 2	7-627-553-48	PRECISION SCREW +P 2X4 TYPE 3
# 3	7-627-553-68	SCREW, PRECISION +P 2X6 TYPE3
# 4	7-671-155-01	STEEL BALL 3.0
# 5	7-627-555-88	SCREW (M1.4X1.8)
# 6	7-627-553-37	SCREW (M2X3), SPECIAL HEAD

****

Note 1) For replacement of CCD imager, CD-58P board, complete and DT-77 board, complete read carefully the CAUTIONS FOR REPLACEMENT OF CCD IMAGER on page 67.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

SECTION 7
SERVICE MODE

☆This unit adopts the camera adjustment and the EVR (Electronic Variable resistor) with the SENSER LANC system.

7-1. SENSER LANC

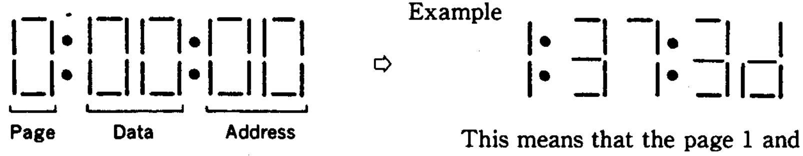
SENSER LANC is the LANC format to adjust the EVR (Electronic Variable resistor) of Video 8 Handycam and to perform tests by using the LANC (control L). This word stands for the same as the SERVICE LANC formerly used, however, the unified word "SENSER LANC" will be used with this substantial functions.

7-1-1. How to Use RM-95 jig (remote control for adjustment)

RM-95 jig is used to operate the SENSER LANC. HOLD switch of this jig is remodelled for service to get the SENSER LANC mode. Replacing microcomputer in RM-95 is required for the old-model RM-95 jig, which has no page display function.

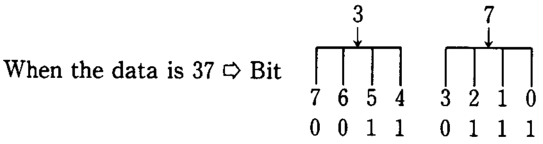
Old model	μPD7503G-A71-12 μPD7503G-C23-12	8-759-142-56 8-759-146-77	Page is not displayed (Replacing microcomputer is required)
New model	μPD7503G-C56-12	8-759-148-35	Page is displayed

LCD display of RM-95



This means that the page 1 and address 3D is data of 37.

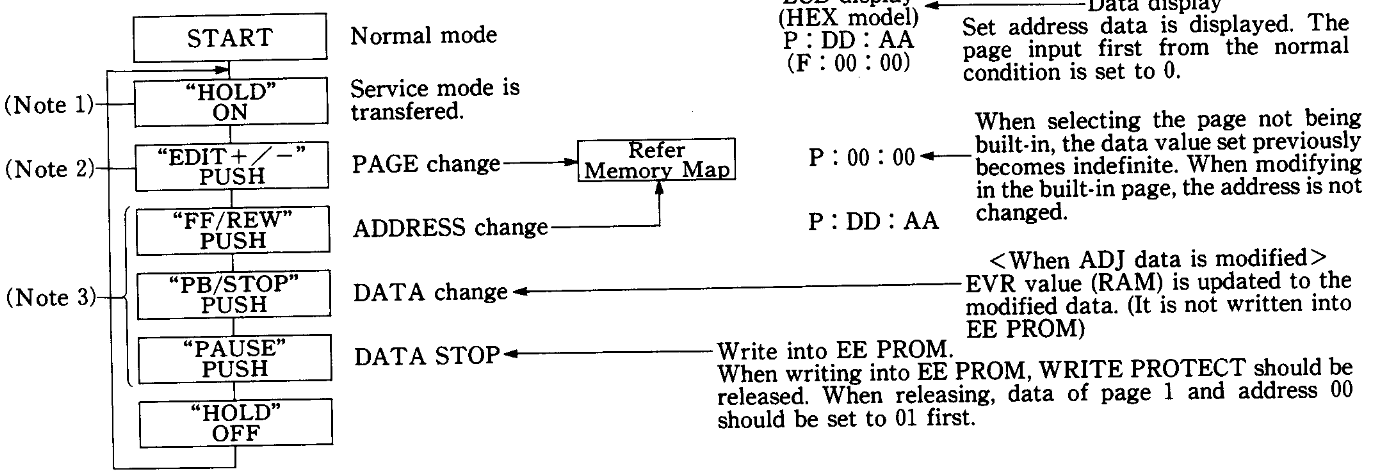
- Reference between Data and Bit



Page	Address	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
1	3D	MP-HG		ME/MP	REC PROOF	V MUTE	A MUTE	JOG	VA PB MODE
		0	0	1	1	0	1	1	1

The data in the above list means as follows:
ME SW ....ON
REC PROOF SW ....ON
AUDIO MUTE ......ON
JOG..................ON
VA PB MODE........ON

7-1-2. Tansfer method of the service mode with RM-95


START
Normal mode
(Note 1)
"HOLD" ON
Service mode is transfered.
(Note 2)
"EDIT+/−" PUSH
PAGE change
Refer Memory Map
"FF/REW" PUSH
ADDRESS change
(Note 3)
"PB/STOP" PUSH
DATA change
"PAUSE" PUSH
DATA STOP
"HOLD" OFF
LCD display (HEX model)
P : DD : AA
(F : 00 : 00)
P : 00 : 00
P : DD : AA

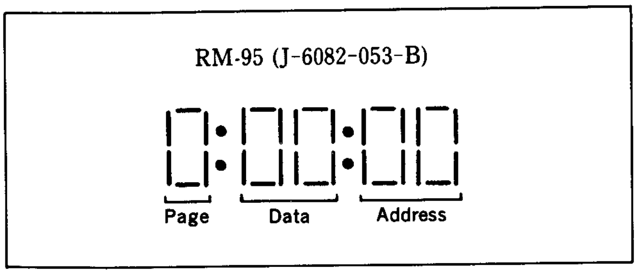
Data display
Set address data is displayed. The page input first from the normal condition is set to 0.

When selecting the page not being built-in, the data value set previously becomes indefinite. When modifying in the built-in page, the address is not changed.

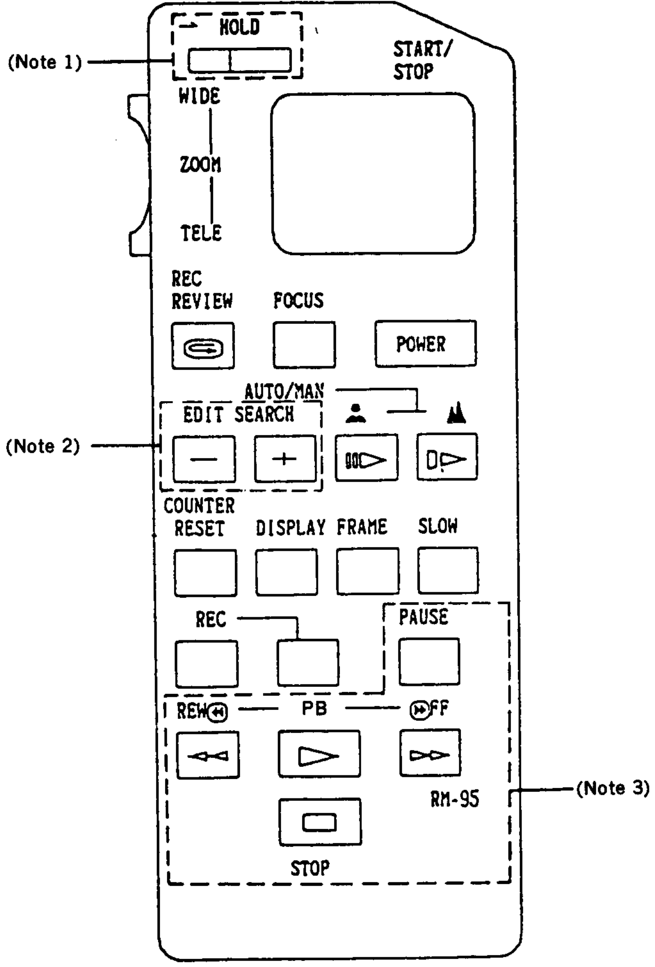
<When ADJ data is modified>
EVR value (RAM) is updated to the modified data. (It is not written into EE PROM)

Write into EE PROM.
When writing into EE PROM, WRITE PROTECT should be released. When releasing, data of page 1 and address 00 should be set to 01 first.

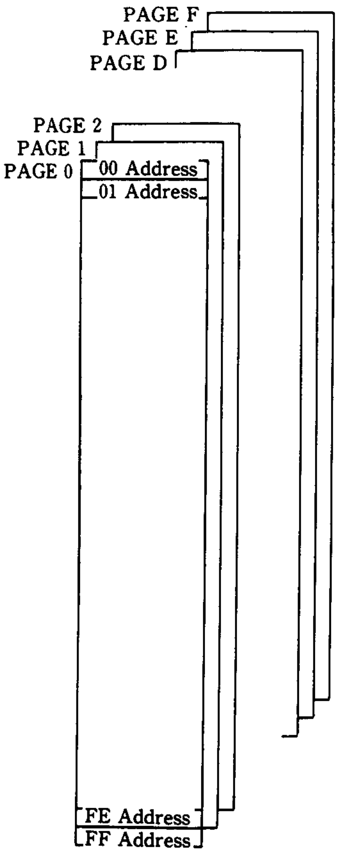
Command name	Command function	Function Button with RM-95
Page Up	Page+1	Edit Search+
Page Down	Page−1	Edit Search−
Direct Page Set	Set to direct page	Event Clear
Address Up	Address+1	Fast Forward
Address Down	Address−1	Rewind
Data Up	Data+1	Play Back
Data Down	Data−1	Stop
Store	Write data into EEPROM, RAM	Pause


RM-95 (J-6082-053-B)
0:00:00
Page
Data
Address

RM-95 (J-6082-053-B)


HOLD
(Note 1)
START/STOP
WIDE
ZOOM
TELE
REC REVIEW
FOCUS
POWER
AUTO/MAN
EDIT SEARCH
(Note 2)
−
+
COUNTER RESET
DISPLAY
FRAME
SLOW
REC
PAUSE
REW
PB
FF
RM-95
(Note 3)
STOP

7-1-3. SENSER LANC Memory Map



PAGE	Page allocation	Description
0	Service	
1	Mode Control RAM	RAM and I/O interface data memory area required for operating the mode controller. Data is not held when the power is turned off because this area is not ROM.
2	Mode Control I/O	
3	Mechanical Control RAM	RAM and I/O memory area of the mechanical controller.
4	Mode Control I/O	
5	Camera microcompuler RAM	RAM and I/O memory area of the camera micro controller.
6	Camera microcompuler I/O	
7	Spare	
8	Spare	
9	Spare	
A	Spare	
B	Spare	
C	Spare	
D	VTR EE-PROM	ROM memory area of the VTR part. Data of this area is held by EE-PROM when the power is tuned off. Releasing protect is required for changing data.
E	Camera EE-PROM2	ROM memory area of the camera part. Data of this area is held by EE•P•ROM when the power is tuned off.
F	Camera EE-PROM1	

Note) There are 16 types of page from 0~F. The allocation of page is as the above list. Only the memory of page D, E and F is not erased when the power is turned off as the EVR (Electronic Variable resistor).

7-1-4. Types of Self-diagnostic Feature

This unit has ADJUST mode and TEST mode as follows:

MODE		Contents
ADJUST	Camera adjustment	Refer to Camera Adjustment
	Switching position adjustment	Refer to each adjustment page
	Battery DOWN adjustment	
TEST	Pass adjustment track shift	When adjusting tape pass, set this mode and shift the tracking.
	Emergency STOP inhibition	Detection of emergency is inhibited. This allows the following items. • Power is not turned off when the battery is ended. • SP/LP is not automatically distinguished. • Emergency is not detected except for TOP/END detection of the TAPE.
	Read of emergency code	The following functions are added to the emergency display function currently in use. ①The lithium battery is not required because to memorize into EE-PROM is allowed. ②The first emergency and the last emergency are memorized. ③The mode when the emergency is generated is memorized, in addition to the emergency contents.
	Motor single check	Rotating in right direction, inverting, stopping of each motor can be separately controlled. • Drum motor • Capstan motor • Loading motor
	Function switch check	The acceptance of the function switch of the unit can be confirmed by designating an address. On the contrary, RM-95 can command the substitution for the function switch of the unit.
	Mechanical switch check	The contents of the mechanical switch and the mode switch can be confirmed.
	Sensor check	The following sensor is input by performing A/D selecting, and the A/D selecting value can be confirmed. TOP sensor, End sensor, S REEL FG, T REEL FG, Thermistor for SWP correction, DEW sensor
	Reception contents check of wireless remote control	The received code contents of the remote control code can be confirmed.

7-1-5. How to use practically

How to use:

How to set the adjustment mode and the TEST mode

Set RM-95 to the service mode. (HOLD SW "ON")

How to change and write data

Press the PAUSE button of RM-95. Pressing PAUSE button is not required for some RAM and I/O area.

Change and write data of EE-PROM

Removing PROTECT is required. The PROTECT is removed by setting as follows:

PAGE 1	Address 00	Data 01

(But CAMERA system don't need release, because don't set PROTECT.)

How to release each mode

Releasing from EE-PROM area	Be sure to return the data of PAGE 1 address 00 to 00 from 01, and then turn off the service mode of RM-95.
Releasing from RAM and I/O area	Turn off the service mode or turn off the power, because hoding of data is not required.

- In order to perform the pass track shift......Refer to page 166.
- In order to inhibit the emergency detection......Refer to the list in page 207.
- In order to check the emergency code......Refer to page 208.
- In order to operate the motor singly......Refer to page 211.
- In order to check the function switch......Refer to page 210.
- In order to check the mechanical switch......Refer to page 209.
- In order to read the A/D selecting value......Refer to page 211.
- In order to check the reception contents of the wireless remote control......Refer to page 211.

SECTION 8
MECHANICAL ADJUSTMENTS

For Mechanical Adjustments
Refer to mechanical adjustment (8 mm Video MECHANICAL ADJUSTMENT MANUAL III) manual for the adjustments and checks of mechanism section and the mechanical parts replacement. (9-972-732-11)
For setting of the track shift mode, however, refer to the following.

8-1. SETTING THE TRACK SHIFT MODE

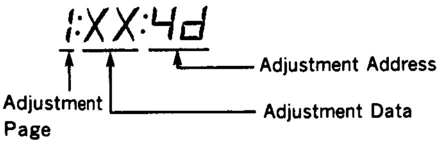
Note : Camera part and video part should have been installed.

[Setting Method]

1) Set the adjustment commander to the HOLD ON side.
2) Press EDIT SEARCH + button once, and select page 1.
3) Select the adjustment address 4D with FF or REW button.
4) Set to 3X with PLAY and STOP button. (Setting of track shift mode)

Note : 3X should be the number from 31 to 3F. (To display "3X" with PLAY and STOP button is simple to shift.)
(When HOLD OFF once after the setting and HOLD ON again, the display of the address data will be changed. To set the another mode with shifting, repeat the procedures from 3).)

5) Set to the HOLD OFF side in order to set the normal mode.



1X : TEST 1
2X : TEST 2 ('CH Playback)
3X : TEST 3 (Shift mode)
4X : Shift release

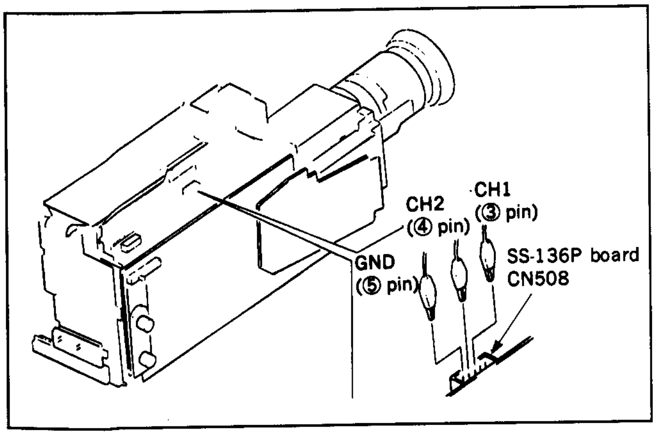


Fig. 8-1.

8-2. PREPARATION FOR ADJUSTMENT

1) Clean the tape running surfaces (tape guide, drum, capstan shaft, pinch roller.)
2) Connect to the oscilloscope.
   CH1 : SS-136P board CN508 pin ③ (PB RF)
   CH2 : SS-136P board CN508 pin ④ (SWP)
3) Play back the tracking alignment tape (WR5-1CP) (8-967-995-07).
4) Check that the RF waveform of the oscilloscope is flat at both inlet and outlet sides. When not flat, make adjustment as follows. (Refer to Figs. 8-1 and 8-2.)

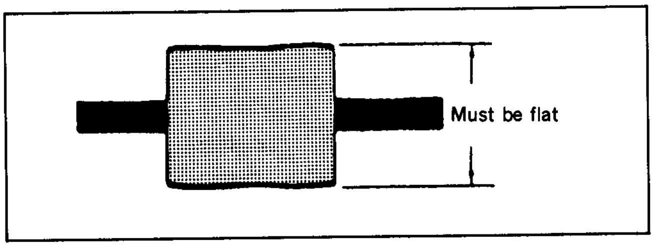


Fig. 8-2.

SECTION 9
CAMERA ADJUSTMENTS

PREPARATION FOR ADJUSTMENT (CAMERA BLOCK)
9-1. LIST OF SERVICING JIGS

- Oscilloscope
- Stabilized power supply (2 units)
- Adjusting screwdriver
- L lench
- Stop watch
- Color monitor TV
- Vectorscope
- Desk-top calculator

Ref. No.	Name	Part No.	Use
J-1	Filter (C14)	J-6080-054-A	Auto white balance adjustment
J-2	ND filter 0.1	J-6080-807-A	
	ND filter 0.3	J-6080-818-A	
	ND filter 0.4	J-6080-806-A	
	ND filter 0.9	J-6080-833-A	
	ND filter 1.0	J-6080-808-A	
J-3	Pattern box PTB-500	J-6029-140-A	
J-4	Color bar chart for pattern box	J-6020-250-A	
J-5	Extension cable (5P)	J-6082-043-A	To connect VC-94P board CN304 and DC-DC converter
	Extension cable (4P)	J-6082-042-A	To connect VC-94P board CN307 and VA-67P board W701
J-6	Extension cable (20P)	J-6082-063-B	To connect VA-67P board CN703 and CT-38P board CN705
J-7	Extension cable (12P)	J-6082-056-A	To connect VC-94P board CN305 and VA-67P board W702
J-8	Camera fixing jig	J-6080-894-A	
J-9	Siemens-star chart Transmission type simens-star chart	J-6080-875-A J-6080-923-A	Either of the siemens-star charts which appear during adjustment may be used.
J-10	Adjustment remote control * 1	J-6082-053-B	
J-11	AF microcomputer data reader jig * 2	J-6082-025-A	
J-12	CPA connector jig	J-6082-109-A	

* 1 Microcomputer IC in the adjustment Remote controller except for μPD7503G-C56-12 (8-759-148-35) does not allow the page selecting. Replace the microcomputer in such a case.

* 2 Change the fixed number of R1 from 10kΩ to 100kΩ in the AF microcomputer data reading jig. (If the number is kept to 10kΩ, the adjustment data can not change because of the difference of of the impedance.)
When adjustment the old-model Handy Cam, 100kΩ is allowed to perform the adustment.

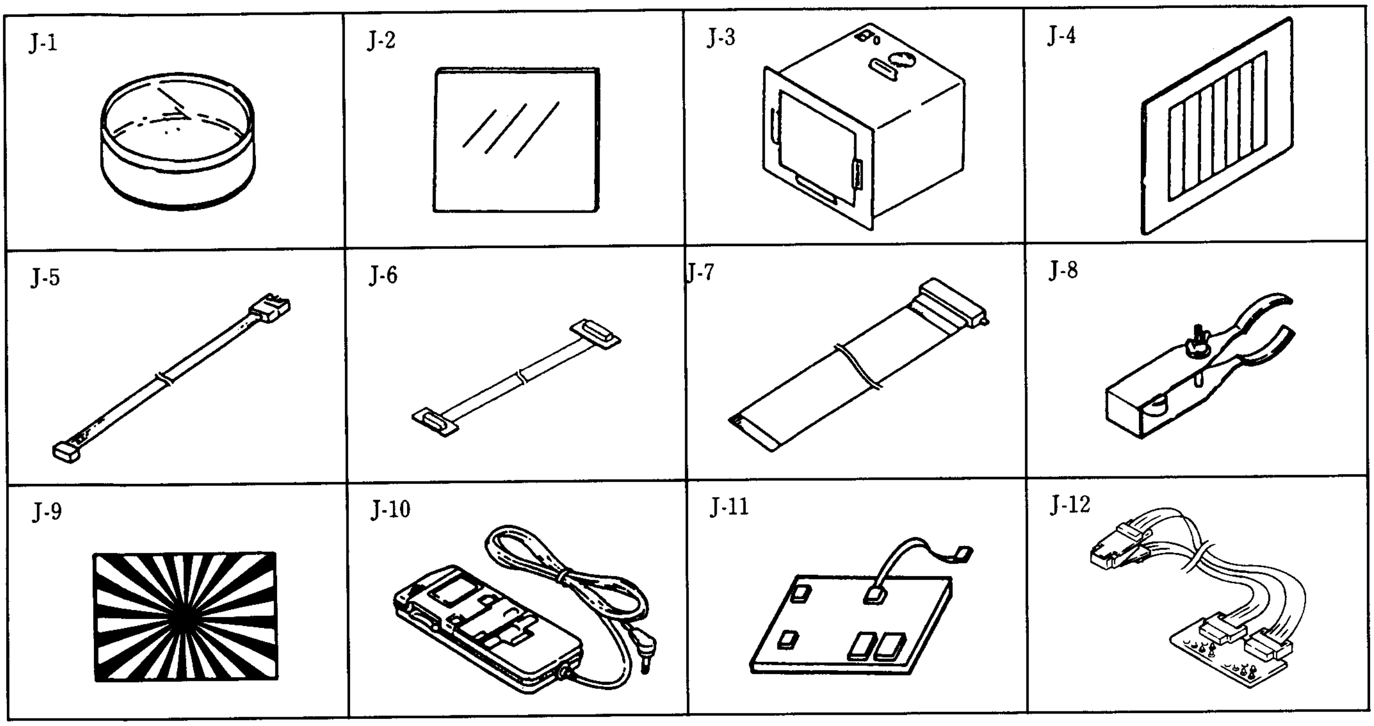

J-1
J-2
J-3
J-4
J-5
J-6
J-7
J-8
J-9
J-10
J-11
J-12

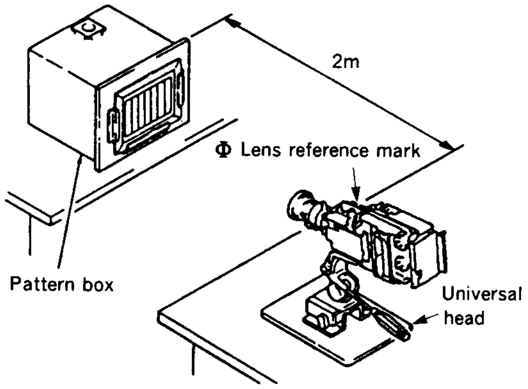
Fig. 9-1.

9-2. PREPARATION FOR ADJUSTMENT

9-2-1. Preparation

Note: Refer to "SECTION 2. DISASSEMBLY" for details of the cabinet and individual boards removal procedure.

1) Connect the camera block and the video block by using the extension cable, and other equipment as shown in Fig. 9-3.
2) EVF (Electrical View Finder) section VF-26 or VF-27 boards is necessary for confirmation of shutter speed, white balance mode and etc.
   If not necessary, it can removed by taking out CN931 on the SW-174P board.
3) MIC board (MC-76P board) is not necessary. Remove it by taking out W651 on the MC-76P board.


2m
Φ Lens reference mark
Pattern box
Universal head

When the camera block and the video block are separated with the cabinet removed, fix by using the camera fixing jig.

Fig. 9-2.

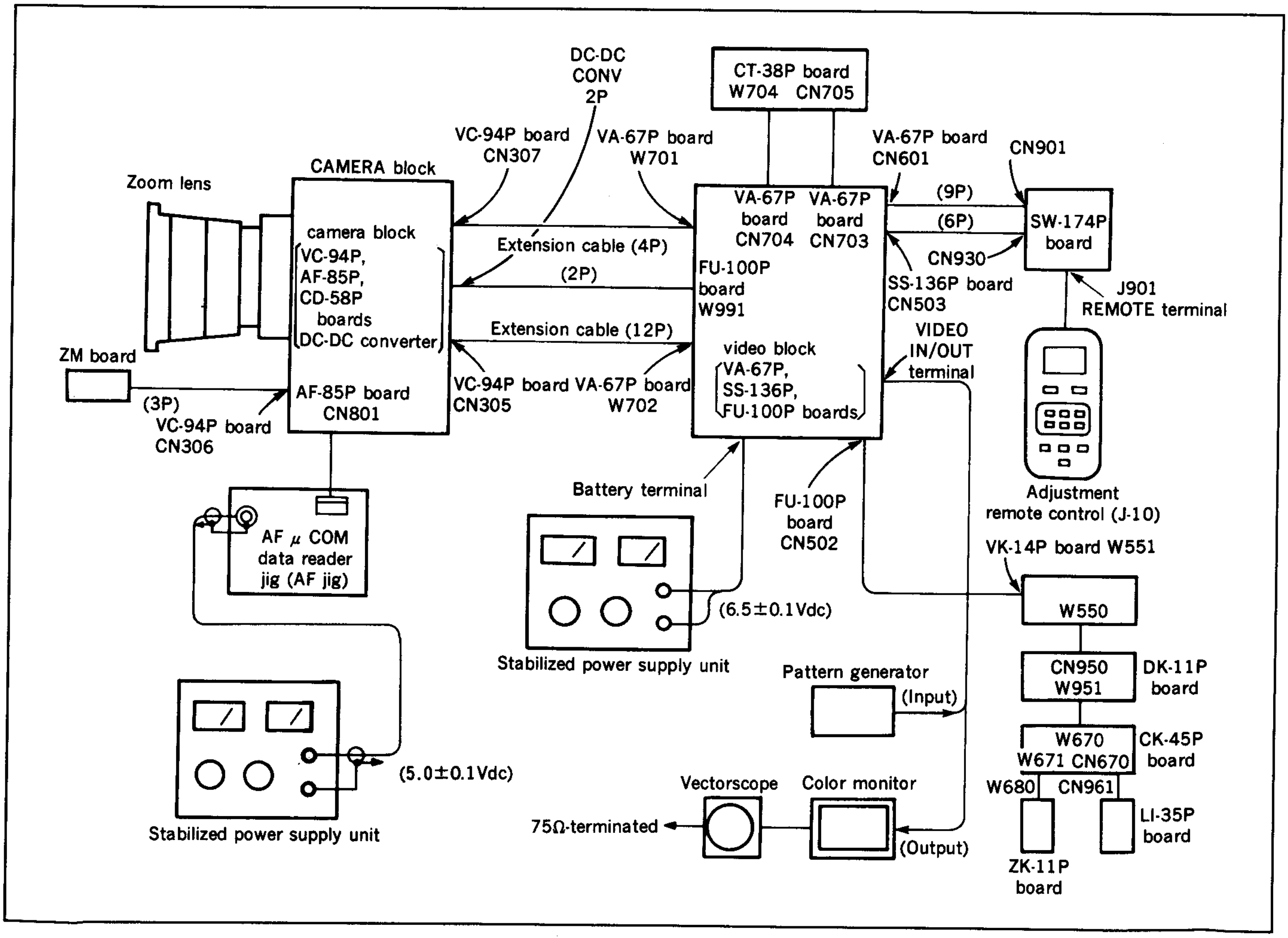

DC-DC CONV 2P
CT-38P board W704 CN705
VC-94P board CN307
VA-67P board W701
VA-67P board CN601
CN901
CAMERA block
Zoom lens
camera block
VC-94P,
AF-85P,
CD-58P boards
DC-DC converter
Extension cable (4P)
(2P)
Extension cable (12P)
VA-67P board CN704
VA-67P board CN703
FU-100P board W991
(9P)
(6P)
CN930
SW-174P board
SS-136P board CN503
J901 REMOTE terminal
VIDEO IN/OUT terminal
video block
VA-67P,
SS-136P,
FU-100P boards
ZM board
(3P)
VC-94P board CN306
AF-85P board CN801
VC-94P board CN305
VA-67P board W702
AF μ COM data reader jig (AF jig)
Battery terminal
FU-100P board CN502
Adjustment remote control (J-10)
VK-14P board W551
W550
(6.5±0.1Vdc)
Stabilized power supply unit
Pattern generator
(Input)
CN950 W951
DK-11P board
W670 W671 CN670
CK-45P board
W680
CN961
(5.0±0.1Vdc)
Vectorscope
Color monitor
75Ω-terminated
(Output)
LI-35P board
ZK-11P board
Stabilized power supply unit

Fig. 9-3.

9-2-2. Caution

1) Setting of switches

Unless otherwise specified, set the switches to the following position for making adjustments.

1. AUTO LOCK switch
   ......Lock release position
2. FOCUS button (S671 on CK-45P board)
   ......MANUAL mode
3. WHITE BALANCE button (S674 on CK-45P board)
   ......INDOOR mode ("INDOOR" indication appears on EVF.)
4. SHUTTER SPEED button (S670 on CK-45P board)
   ......NORMAL mode (No indications of "100" "2000", etc. appear on EVF.)

2) Adjustment order

As a rule, adjust in described order.

3) Objects

1. Color bar chart (standard picture frame)
   When making Adjustments by the use of a color bar chart, adjust the picture frame as shown in Fig. 9-4. (Standard picture frame)

Color Bar Chart Standard Picture Frame

☆ Basically, adjust the color bar chart standard picture frame with the under-scanning monitor as shown in Fig. a.

1) Place a black window with the horizontal width same as that of a color bar pattern, respectively on left and right sides of the screen. (A=B)
2) Put together lower ends of the color pattern and under-scanning monitor in the vertical direction.

Fig. a

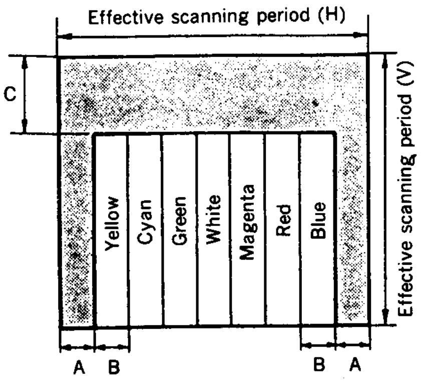

Effective scanning period (H)
C
Yellow
Cyan
Green
White
Magenta
Red
Blue
Effective scanning period (V)
A B
B A

Fig. b

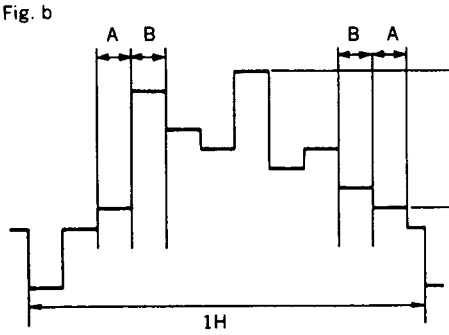
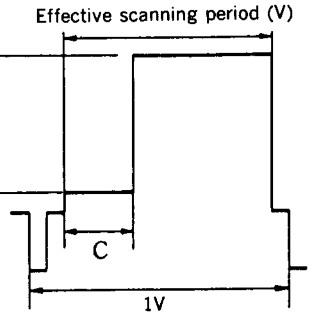


Fig. c

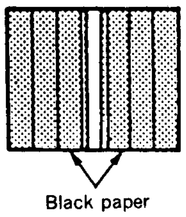

Effective scanning period (V)
C
1V

- To photograph the color bar chart standard picture frame shown in Fig. a. adjust Output Y (CN307 ① on VC-94P board) as shown in Fig. b and c.

Fig. 9-4.

2. All white pattern
   Remove a color bar chart from the pattern box and set the zoom lever fully to the TELE side (68mm).
3. High luminance pattern
   Prepare a high luminance pattern as shown in Fig. 9-5 and adjust the picture frame as shown in Fig. 9-6.
4. Siements star
   orient a camera to have the siemens star center coincide with the monitor screen center on a monitor TV screen.

High luminance pattern


Black paper

Cover a color bar chart with black paper, except half the width of its white stripe. Then shoot the chart in this state.

Fig. 9-5.

High luminance pattern

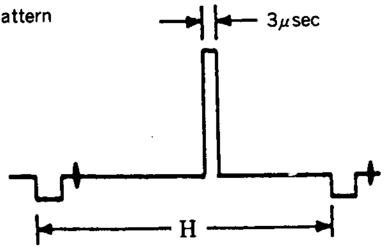


Fig. a (camera output waveform of CPA pin Ⓐ8 on VC-94P board)

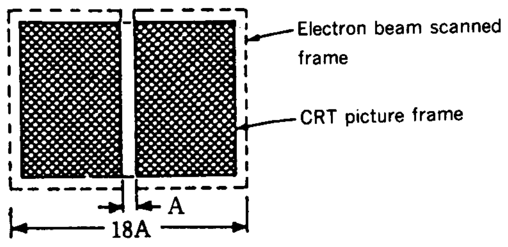

Electron beam scanned frame
CRT picture frame
A
18A

Fig. b (Picture of monitor TV screen)

By operating the camera zooming and orientation have the Fig. a output waveform output and the Fig. b monitor TV image displayed.

Fig. 9-6.

9-2-3. Adjustment Remote Control

In the camera block, the EVR (Electronic Variable Resistor) is used as an adjustment element in place of a conventional semi-fixed resistor. The EVR is controlled by the EVR/AWB microcomputer (VC-94P board IC501). This microcomputer reads the data written in the non-volatile memory inside the microcomputer and sends it to the EVR. The EVR generates an adjustment voltage by D-A conversion of this data (8 bits per one adjustment point).

To adjust, the camera block, therefore, it is necessary to rewrite the adjustment data written in the non-volatile memory. The adjustment remote control is used for this purpose. The adjustment remote control performs bidirectional communications with the microcomputer in the camera block through a remote control signal line (LANC). UP/DOWN commands for adjustment page, address and data are sent from the adjustment remote control to the microcomputer in the camera block. Sent from the microcomputer in the camera block to the adjustment remote control are the adjustment page, address and data.

Note: The microcomputer IC in the adjustment remote controller except for new microcomputer (μPD7503G-C56-12) dose not allow the adjustment page selecting. Replace with the new microcomputer (8-759-148-35) in such a case.

1. Using the Adjustment Remote Control

1) Connect the adjustment remote control to the REMOTE terminal (SW-174P board J901).
(Shift the HOLD switch of the adjustment remote control to the HOLD position (SERVICE position).)
2) Turn on the power for the main unit.
3) If the connection is correct, the following is displayed on the adjustment remote control LCD. (The adjustment data varies from one set to another.)

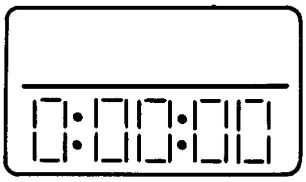


Fig. 9-7. (a)

4) Specify your desired adjustment page by the adjustment remote control.
Pressing the EDIT SEARCH (+) increments the adjustment page. Pressing the EDIT SEARCH (—) decrements it. The adjustment page is shown in the hexadecimal numbers and there are 16 of them from 1 to F. The CAMERA adjustment page is page F and Pressing the EDIT SEARCH (—) buttom one push.

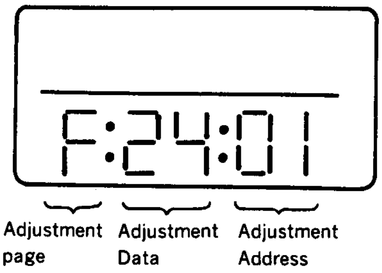


Fig. 9-7. (b)

5) Specify your desired adjustment address by the adjustment remote control. Pressing the FF (▶▶) button increments the adjustment address, and pressing the REW (◀◀) button decrements it.
(The adjustment address is shown in the decimal number and there are 256 of them from 00 to FF. The adjustment address corresponds to the output terminal of the EVR (IC301 on the VC-94P board, IC504 on the VC-94P board, and IC004 of the MX-10 board). Refer to Table 9-1 for adjustment of each address.)
6) Make adjustment by increasing/decreasing the adjustment data.
Pressing the PLAY (▶) button increases the adjustment data, and pressing the STOP (■) button decreases it.

- The adjustment data is shown in the hexadecimal number and assumes 256 kinds of values ranging from 00 to FF.

Hexadecimal No.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Indication of LCD	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal converted value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Table 9-1.

- The adjustment data corresponds to the output voltage of the EVR (IC301 on the VC-94P board, IC504 on the VC-94P board, and IC004 on the MX-10 board) as follows:
  MX-10 board IC004 : 2.0 ⟷ 5.0 Vdc
  VC-94P board IC301 : 0 ⟷ 5.0Vdc
  VC-94P board IC504 : 1.0 ⟷ 3.5Vdc

7) Change the adjustment address with the FF (▶▶) or REW (◀◀) button in order to store the adjustment data into the non-volatile memory built in the EVR/AWB microcomputer (VC-94P board IC501).
(If this operation is omitted, new adjustment data will not be stored into the non-volatile memory.)
8) There is a function provided to make note of the last error cuased by the COUNTER RESET button during operation of the set even if the power is turned off. This LAST MEMO EMERGENCY (last error) can be cleared.

2. Cautions for Using the Adjustment Remote Control

Erroneous operation of the adjustment remote control may delete correct adjustment data. To avoid this, it is recommended to make note of all the adjustment data before adjustment and of new adjustment data every time adjustment of one item is completed.

3. List of Adjustment Addresses

Use the adjustment page F for the camera part adjustment of this unit.

Adjust-ment Address	Adjustment Voltage Output Terminal	Adjustment Item	Remarks	Memo Column
01	MX-10 board IC004 pin ⑱	R CONT	Auto white balance adjustment	
02	MX-10 board IC004 pin ⑲	B CONT		
03	MX-10 board IC004 pin ②	C_1 GAIN	Matrix (3) C_1 gain adjustment	
04	MX-10 board IC004 pin ③	B GAIN	Pre-white balance adjustment	
05	MX-10 board IC004 pin ④	R GAIN		
06	MX-10 board IC004 pin ⑤	Y_2 GAIN	Matrix (2) Y_2 gain adjustment	
07	MX-10 board IC004 pin ⑥	Y_1 GAIN	Matrix (1) Y_1 gain adjustment	
08	MX-10 board IC004 pin ⑦	Y_H GAIN	Y_H level adjustment	
09	MX-10 board IC004 pin ⑧	R-Y GAIN	Color reproducibility adjustment	
0A	MX-10 board IC004 pin ⑨	B-Y GAIN		
0B	MX-10 board IC004 pin ⑫	R-Y HUE		
0C	MX-10 board IC004 pin ⑬	B-Y HUE		
0D	VC-94P board IC301 pin ⑱	SHP LEVEL	H aperture Adjustment	
0E	VC-94P board IC301 pin ⑲	Y LEVEL	White clip, Y level adjustments	
0F	VC-94P board IC301 pin ②	VAP GAIN		
10	VC-94P board IC301 pin ③	SET UP	Set up adjustment	
11	VC-94P board IC301 pin ④	C LEVEL	Chroma level adjustment	
12	VC-94P board IC301 pin ⑤	V SUB CONT	V sub adjustment	
13	VC-94P board IC301 pin ⑥	PG CONT	PG cont adjustment	
14	VC-94P board IC301 pin ⑦	$Y\gamma$ CONT		
15	VC-94P board IC301 pin ⑧	WHITE CLIP	White clip adjustment	
16	VC-94P board IC301 pin ⑨	SYNC LEVEL	Sync level adjustment	
17	VC-94P board IC301 pin ⑫	BURST LEVEL	Burst level adjustment	
18	VC-94P board IC301 pin ⑬	MAX GAIN	Set up, Max gain adjustments	
19	VC-94P board IC504 pin ⑱	IRIS REF	Iris adjustment	
1A	VC-94P board IC504 pin ⑲	AGC REF	AGC adjustment	
1B	VC-94P board IC504 pin ②	HALL GAIN	Hall adjustment	
1C	VC-94P board IC504 pin ③	HALL OFFSET		
1D	VC-94P board IC504 pin ④	FADER LEVEL		
1E	VC-94P board IC504 pin ⑤	—		
1F	VC-94P board IC504 pin ⑥	FADER CONT		
20	VC-94P board IC504 pin ⑦	FOCUS SPEED		
21	VC-94P board IC504 pin ⑧	ZOOM SPEED		
22	VC-94P board IC504 pin ⑨	M IRIS CONT	Not used	
23	VC-94P board IC504 pin ⑫	M AGC CONT		
24	VC-94P board IC504 pin ⑬	AGC IN PULSE		

Table 9-2 (1).

Adjust-ment Address	Adjustment Voltage Output Terminal	Adjustment Item	Remarks	Memo Column
25		AGC LD REF		
26		AGC MD	AF adjustment	
27		AGC HD		
28		LD-B		
29		HD-B		
2A		M SPEED-A	Focus motor speed adjustment	
2B		M SPEED-B		
2C		M SPEED-C		
2D		M SPEED-D		
2E		M SPEED-E		
2F		HOLD TIME		
30		PA SET	AF adjustment	
31		AGC LD TH		
32		HD TH1		
33		HD TH2		
34		ZOOM-POSI 1		
35		ZOOM-POSI 2		
36		ZOOM-POSI 3		
37		ZOOM-POSI 4		
38		ZOOM-POSI 5		
39		GETA MIN		
3A		GETA		
3B		BACK RUSH		
3C		MACRO TIME OUT		
3D		ZOOM-TAN-MASK		
3E		BACK RUSH ZOOM		
3F		IRIS L		
40		IRIS H		
41		MACRO END COUNT		
42		FILTER GAIN		
43		LD FILTER GAIN		
44		AGC LD BIAS		
45		AGC CONT W	AF adjustment	
46		AGC CONT B		

Table 9-2 (2).

Adjustment Address	Adjustment Voltage Output Terminal	Adjustment Item	Remarks	Memo Column
47		AGC LD GAIN		
48		SHIND STOP		
49		INV COUNT MAX		
4A		ADJ PWM	Focus motor speed adjustment	
4B		AGC COUNT TH		
4C		END COUNT THF		
4D		END COUNT THF		
4E		FDL GIKAI TH		
4F		FDN TH		
50		FDP TH		
51		HANTING ZONE		
52		M SPEED UP		
53		PA GIKAI TH		
54		———		
55		———		
56		———		
57		———		
58		ZOOM-SPEED 1		
59		ZOOM-SPEED 2		
5A		ZOOM-SPEED 3		
5B		ZOOM-SPEED 4		
5C		MAN PWM SPEED	Focus motor speed adjustment	
5D		MAN F SPEED		
5E		———		
5F		———		
60		IRIS REF-NOR		
61		IRIS REF-PO		
62		IRIS REF-SP		
63		———		
64		———		
65		———		
66		———		
67		———		
68		———		
69		———		

Table 9-2 (3).

Adjust-ment Address	Adjustment Voltage Output Terminal	Adjustment Item	Remarks	Memo Column
6A		————		
6B		MAXSHUT-PO (H)		
6C		MAXSHUT-PO (L)		
6D		MAXSHUT-SP (H)		
6E		MAXSHUT-SP (L)		
6F		REF-WIDTH (H)		
70		REF-WIDTH (L)		
71		SHUT-MULTI (H)		
72		SHUT-MULTI (L)		
73		SHUT-COUNT 1		
74		SHUT STEP-MULTI		
75		IRIS OPEN		
76		REF-TURBO (H)		
77		REF-TURBO (L)		
78		TURBO-WIDTH (H)		
79		TURBO-WIDTH (L)		
7A		TURBO-TR (H)		
7B		TURBO-TR (L)		
7C		SHUT-COUNT 2		
7D		SHUT-COUNT 3		
7E		————		
7F		————		
80		USER R-Y GAIN		
81		USER B-Y GAIN		
82		USER B-Y HUE		
83		USER R-Y HUE		
84		USER SHP LEVEL		
85		USER Y LEVEL		
86		————		
87		————		
88		————		
89		————		
8A		————		
8B		————		
8C		————		

Table 9-2 (4).

Adjust-ment Address	Adjustment Voltage Output Terminal	Adjustment Item	Remarks	Memo Column
8D		—		
8E		—		
8F		—		
90		R3200 MSB		
91		R3200 LSB		
92		B3200 MSB		
93		B3200 LSB		
94		G3200 MSB		
95		G3200 LSB		
96		SHUTTER IN		
97		SHUTTER OUT		
98		START R	Auto white balance adjustment	
99		START B		
9A		R OUT DOOR		
9B		B OUT DOOR		
9C		—		
9D		—		
9E		—		
9F		—		
A0		Ra	Auto white balance adjustment	
A1		Rb		
A2		Rc		
A3		Ba		
A4		Bb		
A5		Bc		
A6		R/B TOP		
A7		R/B MDL		
A8		R/B BTM		
A9		B/R TOP		
AA		B/R MDL		
AB		B/R BTM		
AC		BTM SLP R		
AD		BTM SLP B		
AE		MDL SLP R		
AF		MDL SLP B		

Table 9-2 (5).

Adjust-ment Address	Adjustment Voltage Output Terminal	Adjustment Item	Remarks	Memo Column
B0		TOP SLP R	Auto white balance adjustment	
B1		TOP SLP B		
B2		KEIKO R		
B3		KEIKO B		
B4		BTM UP		
B5		BTM DWN		
B6		MDL UP		
B7		MDL DWN		
B8		TOP UP	Auto white balance adjustment	
B9		TOP DWN		
BA		KEIKO		
BB		KEIKO DWN		
BC		R TOP LMT		
BD		R DWN LMT	Auto white balance adjustment	
BE		B TOP LMT		
BF		B IN TOP		
C0		B IN MAX		
C1		B OUT MIN		
C2		B OUT DWN		
C3		B DWN LMT		
C4		LL LMT		
C5		TM DIVID		
C6		BM DIVID		
C7		DELAY TM		
C8		FAST TM		
C9		OUT HYS OFF		
CA		OUT B HYS		
CB		———		
CC		———		
CD		———		
CE		———		
CF		———		
D0		SYSTEM	NTSC/PAL select	
D1		———		
D2		———		

Table 9-2 (6).

<table>
<tr><th>Adjust-ment Address</th><th>Adjustment Voltage Output Terminal</th><th>Adjustment Item</th><th>Remarks</th><th>Memo Column</th></tr>
<tr><td>D3</td><td></td><td>—</td><td></td><td></td></tr>
<tr><td>D4</td><td></td><td>—</td><td></td><td></td></tr>
<tr><td>D5</td><td></td><td>—</td><td></td><td></td></tr>
<tr><td>D6</td><td></td><td>—</td><td></td><td></td></tr>
<tr><td>D7</td><td></td><td>—</td><td></td><td></td></tr>
<tr><td>D8</td><td></td><td>—</td><td></td><td></td></tr>
<tr><td>D9</td><td></td><td>—</td><td></td><td></td></tr>
<tr><td>DA</td><td></td><td>—</td><td></td><td></td></tr>
<tr><td>DB</td><td></td><td>—</td><td></td><td></td></tr>
<tr><td>DC</td><td></td><td>—</td><td></td><td></td></tr>
<tr><td>DD</td><td></td><td>—</td><td></td><td></td></tr>
<tr><td>DE</td><td></td><td>—</td><td></td><td></td></tr>
<tr><td>DF</td><td></td><td>—</td><td></td><td></td></tr>
<tr><td>E0</td><td></td><td>DISPLAY MODE</td><td>The following adjustment mode is selected by changing the adjustment data.
<table>
<tr><th>Adjustment data.</th><th>Adjustment Mode</th></tr>
<tr><td>00</td><td>DISPLAY MODE R, B, CONT</td></tr>
<tr><td>01</td><td>NEW R, B</td></tr>
<tr><td>02</td><td>R RATIO</td></tr>
<tr><td>03</td><td>B RATIO</td></tr>
<tr><td>04</td><td>R GAIN</td></tr>
<tr><td>05</td><td>B GAIN</td></tr>
<tr><td>06</td><td>RM DATA</td></tr>
<tr><td>07</td><td>GM DATA</td></tr>
<tr><td>08</td><td>BM DATA</td></tr>
<tr><td>09</td><td>NORM R</td></tr>
<tr><td>0A</td><td>NORM B</td></tr>
<tr><td>0B</td><td>R DATA</td></tr>
<tr><td>0C</td><td>G DATA</td></tr>
<tr><td>0D</td><td>B DATA</td></tr>
<tr><td>0E</td><td>R_1, B AIM</td></tr>
<tr><td>0F</td><td>ERROR</td></tr>
</table></td><td></td></tr>
<tr><td>E1</td><td></td><td>—</td><td></td><td></td></tr>
<tr><td>E2</td><td></td><td>—</td><td></td><td></td></tr>
</table>

Table 9-2 (7).

<table>
<tr><th>Adjustment Address</th><th>Adjustment Voltage Output Terminal</th><th>Adjustment Item</th><th>Remarks</th><th>Memo Column</th></tr>
<tr><td>E3</td><td></td><td>—</td><td></td><td></td></tr>
<tr><td>E4</td><td></td><td>—</td><td></td><td></td></tr>
<tr><td>E5</td><td></td><td>—</td><td></td><td></td></tr>
<tr><td>E6</td><td></td><td>—</td><td></td><td></td></tr>
<tr><td>E7</td><td></td><td>—</td><td></td><td></td></tr>
<tr><td>E8</td><td></td><td>—</td><td></td><td></td></tr>
<tr><td>E9</td><td></td><td>—</td><td></td><td></td></tr>
<tr><td>EA</td><td></td><td>—</td><td></td><td></td></tr>
<tr><td>EB</td><td></td><td>MODE</td><td>The following adjustment mode is selected by changing the adjustment data.
<table>
<tr><th>Adjustment Data</th><th>Adjustment Mode</th></tr>
<tr><td>00</td><td>NORMAL</td></tr>
<tr><td>01</td><td>F-HANTING</td></tr>
<tr><td>03</td><td>ZOOM-POSI</td></tr>
<tr><td>05</td><td>IRIS-POSI</td></tr>
<tr><td>0B</td><td>AGC-CONT</td></tr>
<tr><td>11</td><td>SHUTTER IN/OUT</td></tr>
<tr><td>13</td><td>IRIS LEVEL</td></tr>
<tr><td>ED</td><td>FILTER-MD</td></tr>
<tr><td>EF</td><td>FILTER-HD</td></tr>
<tr><td>F1</td><td>FILTER-LD</td></tr>
<tr><td>F5</td><td>FP3 HANTING</td></tr>
</table></td><td></td></tr>
<tr><td>EC</td><td></td><td>AWB MODE 3</td><td></td><td></td></tr>
<tr><td>ED</td><td></td><td>AWB MODE 2</td><td></td><td></td></tr>
<tr><td>EE</td><td></td><td>AWB MODE 1</td><td>The following auto white balance adjustment mode is selected by changing the adjustment data.
<table>
<tr><th>Adjustment Data</th><th>Adjustment Mode</th></tr>
<tr><td>00</td><td>AWB MODE 1</td></tr>
<tr><td>10</td><td>WB DIRECT</td></tr>
<tr><td>F0</td><td>WB FREE</td></tr>
<tr><td>01</td><td>3200k Data fetch 1</td></tr>
<tr><td>23</td><td>3200k Data fetch 2</td></tr>
</table></td><td></td></tr>
</table>

Table 9-2 (8).

Adjustment Address	Adjustment Voltage Output Terminal	Adjustment Item	Remarks	Memo Column
EF		————		
F0		————		
F1		————		
F2		————		
F3		————		
F4		————		
F5		————		
F6		————		
F7		————		
F8		————		
F9		————		
FA		————		
FB		————		
FC		————		
FD		————		
FE		————		
FF		————		

Table 9-2 (9).

9-2-4. Checkpoint Array

Most measurement points for adjustment of the camera block are concentrated on the checkpoint array of the VC-94P board.

Solder a short lead wire, etc. to the terminal required for adjustment and connect an oscilloscope. Table 9-3 shows the terminal numbers and signal names of the checkpoint array.

Note. The CPA connector jig allows you to connect an oscilloscope easily.

Terminal No.	Signal Name	Terminal No.	Signal Name
A1	N.C	B1	N.C
A2	PG CONT	B2	N.C
A3	MODE B	B3	Y (LPF) OUT
A4	N.C	B4	V_{SUB}
A5	VAP OUT	B5	VAP SLICE
A6	TP	B6	N.C
A7	WB-G	B7	Y_H GAIN
A8	CAM Y	B8	Y_2 GAIN
A9	Y_H	B9	N.C
A10	CAM C	B10	GND
A11	Y_H OUT 1	B11	IRIS OUT

Table 9-3.

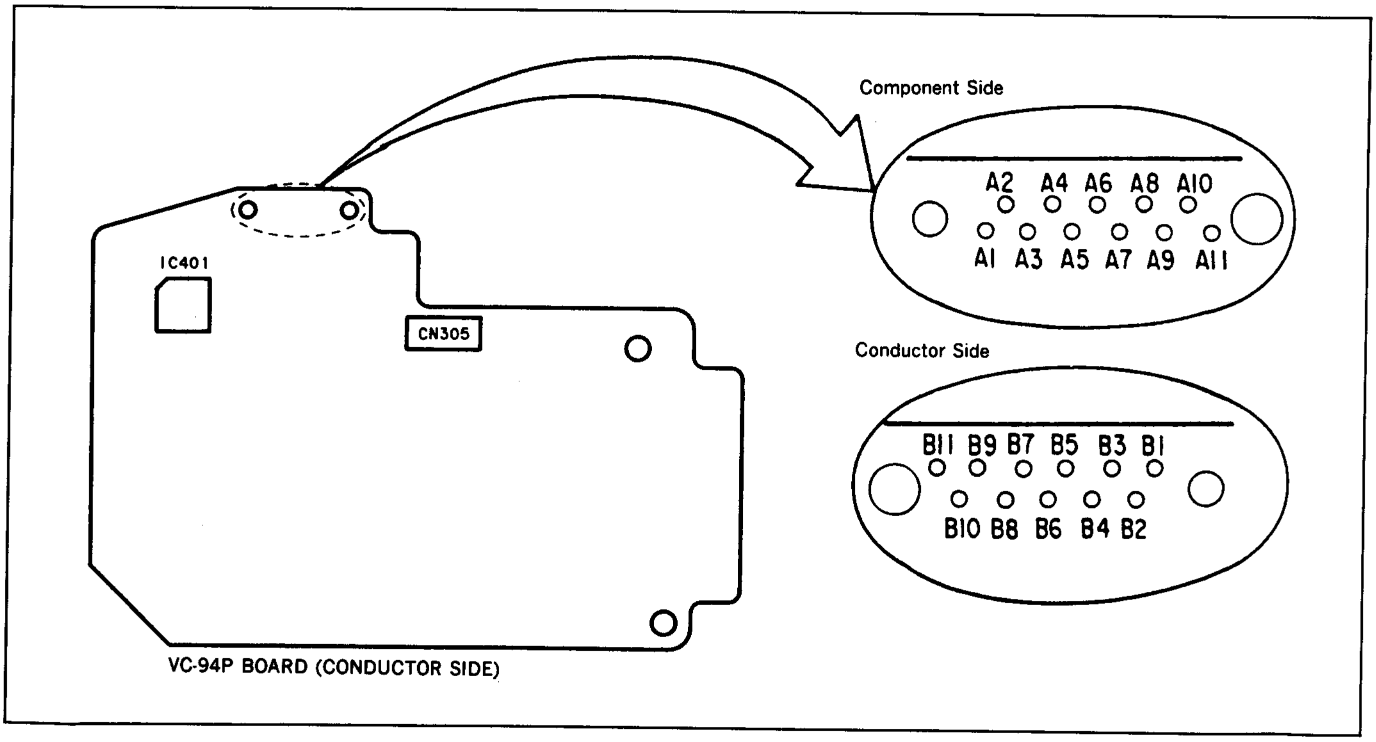

Component Side
A2 A4 A6 A8 A10
A1 A3 A5 A7 A9 A11
IC401
CN305
Conductor Side
B11 B9 B7 B5 B3 B1
B10 B8 B6 B4 B2
VC-94P BOARD (CONDUCTOR SIDE)

Fig. 9-8.

9-2-5. AF Microcomputer Data Reader Jig

The AF microcomputer data reader jig converts adjustment serial data outputted from the AF microcomputer (AF-85P board CN801) (different data are outputted depending on the adjustment mode, such as HALL (iris) state, focus state, focus motor speed, zoom ring position, etc.) into 2-digit hexadecimal numbers and indicates on the LED.

Note:
Change the fixed number of R1 from 10kΩ to 100kΩ in the AF microcomputer data reading jig. (If the number is kept to 10kΩ, the adjustment data can not change because of the difference of the impedance.)
When adjusting the old-model Handy Cam, 100kΩ is allowed to perform the adjustment.

[Connection]
Connect as shown in the figure below :

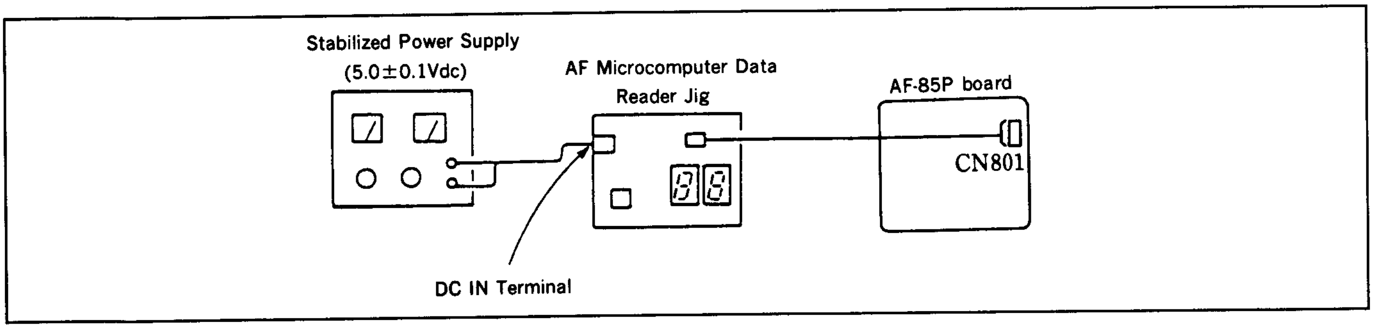


Fig. 9-9.

9-2-6. Data Processing

In order to obtain adjustment data in some adjustment items, it is necessary to compute the display data (hexadecimal number) of the AF microcomputer data reader jig and adjustment remote control.

In this case, convert the hexadecimal number into the decimal number before computation, convert its computed result back into the decimal number to assume it as the adjustment data. Table 9-4. shows a hexadecimal-decimal conversion table.

Hexadecimal — Decimal Conversion Table

Higher Digit of Hex. No. / Lower Digit of Hex. No.	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	② ↓ D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A(A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
①→ B(b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C(c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D(d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E(E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F(F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: Values in parentheses are those displayed on the AF microcomputer reader jig or adjustment remote control.

(Example) When the AF microcomputer reader jig or adjustment remote control displays "BD (bd)";
Since the higher digit of the hexadecimal number is B (b) and its lower digit is D (d), the decimal number to be obtained is "189" at an intersecting point of ① and ② in the table above.

Table. 9-4.

9-3. ADJUSTMENT OF CAMERA SYSTEM

- In principle, all adjustments must be made in accordance with Adjustment procedure.
- When replacing lens, do not forget to make the following adjustment.
- When replacing CCD imager or lens, do not forget to adjust the camera system property.

9-3-1. Prime Oscillation Adjustment (CD-58P Board)

Object	Color bar chart standard picture frame
Measurement point	DT-77 board pin ③
Measuring instrument	Frequency counter
Adjustment element	CT122
Specified value	14187500±71Hz

Note : Connect the frequency counter through a buffer amplifier (Oscilloscope, etc.) having high impedance and low capacitance.

[Adjustment Method]

1) Adjust to 14187500±71Hz with CT122.

9-3-2. PLL Adjustment (CD-58P Board)

Object	Optional
Measurement point	See Fig. 9-10.
Measuring instrument	Digital voltmeter
Adjustment element	CT121
Specified value	2.5±0.2Vdc

[Adjustment Method]

1) Adjust to 2.5±0.2Vdc with CT121.

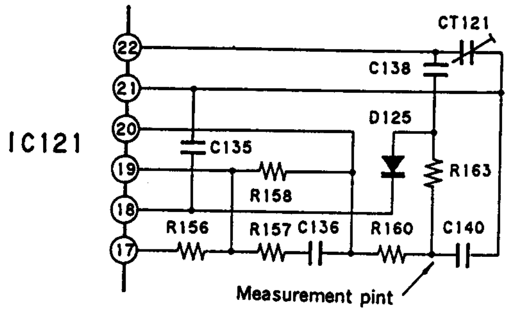


Fig. 9-10.

9-3-3. Flange Back Adjustment

Object	Siemens star (at 2 m in front of the lens datum level Φ mark)
Measurement point	Check with the monitor TV.
Measuring instrument	
Adjustment element	Flange back adjusting pin
Tools	Phillips screwdriver

[Adjustment Method]

1) Press the FOCUS button to select the MANUAL mode.
2) Place the Siemens star at a distance of 2 m in front of the lens datum level (refer to Fig. 9-2).
3) Adjust a camera block position to center the Siemens star on the monitor screen with the monitor screen.
4) Check that the lens zoom lever can be moved fully to the WIDE end (8.5 mm) and TELE end (68 mm), respectively, and fix it at the WIDE end. (When this is done, check also zooming operation on the monitor screen.)
5) Set the lens focusing mark at the center of "2".

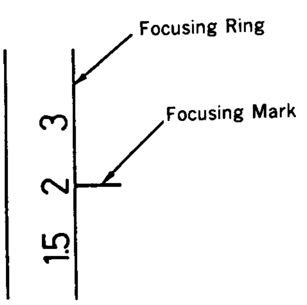


Fig. 9-11.

6) Loosen the flange back setscrew ❶ with the Phillips screwdriver. (Refer to Fig. 9-13)
7) Viewing the monitor screen, turn the flange back adjusting pin ❷ to make clearest the wedge located at the center of the Siemens star on the screen. (Turn it 2 to 3 times to the right and left to check the wedge to be clearest.)

   Note : Do not turn the adjusting pin excessively in one direction at a time.
8) Holding the flange back adjusting pin ❷ not to turn it further, tighten the flange back setscrew ❶.
9) With the zoom lever fixed at the WIDE end, turn the focusing ring and stop it at a position which provides the clearest image of the wedge. Check that the focusing ring is within the range shown in Fig. 9-12 at this time.

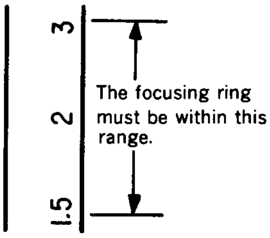


Fig. 9-12.

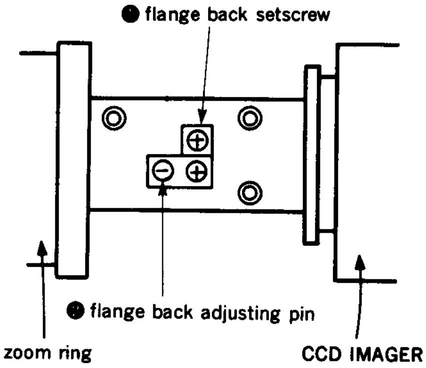


Fig. 9-13.

10) Fix the zoom lever at the TELE end.
11) Turn the focusing ring and stop it at a position which provides the clearest wedge image. When this is done, check that the focusing ring is within a range of ±1.5mm from the center of "2".

9-3-4. Camera DC-DC Converter Voltage Check (VC-94P Board/CD-58P Board)

Measuring isntrument	Digital voltmeter
15V check	
Measurement point	CN101 pin ① (CD-58P Board)
Specified value	$15.0\pm0.2V_{DC}$
−9V check	
Measurement point	CN101 pin ② (CD-58P Board)
Specified value	$-9.00\pm0.15V_{DC}$
4.9V check	
Measurement point	CN101 pin ③ (CD-58P Board)
Specified value	$4.9\pm0.1V_{DC}$
CAM 4.9V check	
Measurement point	CN304 pin ④ (VC-94P Board)
Specified value	$4.9\pm0.1V_{DC}$

[Checking Method]

1) Each supply voltage must meet the specified value.

9-3-5. EVR Initial Setting of adjustment page F

Set to the following initial settings of the adjustment data only when the CCD IMAGER was replaced.

Make initial setting of adjustment data when the EVR/AWB microcomputer is replaced.

(Pre-replacement microcomputer data will do.)

Adjustment Address	Adjustment Data Initial Value
0E (Y LEVEL)	9C
0F (VAP GAIN)	7A
12 (VSUB CONT)	3A
13 (PG CONT)	5A
14 ($Y\gamma$ CONT)	AE
15 (WHITE CLIP)	FF
18 (MAX GAIN)	E0
19 (IRIS REF)	4C
1F (FADER CONT)	00
25 (AGC LD REF)	B0
26 (AGC MD)	A0
27 (AGC HD)	B0
28 (LD B)	30
29 (HD B)	30
2F (HOLD TIME)	3C
30 (PA SET)	E5
31 (AGC LD TH)	A0
32 (HD TH1)	30
33 (HD TH2)	1E
34 (ZOOM-POSI 1)	0F
35 (ZOOM-POSI 2)	3C
36 (ZOOM-POSI 3)	6B
37 (ZOOM-POSI 4)	9A
38 (ZOOM-POSI 5)	CA
39 (GETA MIN)	05
3A (GETA)	10
3B (BACK RUSH)	05
3C (MACRO TIME OUT)	07
3D (ZOOM-TAN-MASK)	30
3E (BACK RUSH ZOOM)	0A
3F (IRIS L)	AC
40 (IRIS H)	C0
41 (MACRO END COUNT)	3C
42 (FILTER GAIN)	02
43 (LD FILTER GAIN)	06
44 (AGC LD BIAS)	80
45 (AGC COUNT W)	30
46 (AGC COUNT B)	FF
47 (AGC LD GAIN)	A4
48 (SHIND STOP)	20
49 (INV COUNT MAX)	10
4A (ADJ PWM)	FF
4B (AGC COUNT TH)	0A
4C (END COUNT THF)	2A
4D (END COUNT THN)	2A
4E (FDL GIKAI TH)	03
4F (FDN TH)	FD
50 (FDP TH)	03
51 (HANTING ZONE)	05
52 (M SPEED UP)	01
53 (PA GIKAI TH)	09
58 (ZOOM-SPEED 1)	20
59 (ZOOM-SPEED 2)	20
5A (ZOOM-SPEED 3)	50
5B (ZOOM-SPEED 4)	53
5D (MAN F SPEED)	30

Adjustment Address	Adjustment Data Initial Value
60 (IRIS REF NOR)	60
61 (IRIS REF PO)	60
62 (IRIS REF SP)	60
6B (MAX SHUT-PO (H))	00
6C (MAX SHUT-PO (L))	CE
6D (MAX SHUT-SP (H))	00
6E (MAX SHUT-SP (L))	E6
6F (REF-WIDTH (H))	01
70 (REF-WIDTH (L))	00
71 (SHUT-MULTI (H))	06
72 (SHUT-MULTI (L))	00
73 (SHUT-COUNT 1)	06
74 (SHUT STEP-MULTI)	02
75 (IRIS-OPEN)	20
76 (REF-TURBO (H))	06
77 (REF-TURBO (L))	00
78 (TURBO-WIDTH (H))	01
79 (TURBO-WIDTH (L))	00
7A (TURBO-TR (H))	01
7B (TURBO-TR (L))	00
7C (SHUT-COUNT 2)	01
7D (SHUT-COUNT 3)	01
80 (USER R-Y GAIN)	10
81 (USER B-Y GAIN)	0D
82 (USER B-Y HUE)	0D
83 (USER R-Y HUE)	0C
84 (USER SHP LEVEL)	0A
85 (USER Y LEVEL)	0C
96 (SHUTTER IN)	B1
97 (SHUTTER OUT)	8B
AC (BTM SLP R)	48
AD (BTM SLP B)	48
AE (MDL SLP R)	40
AF (MDL SLP B)	30

Adjustment Address	Adjustment Data Initial Value
B1 (TOP SLP B)	10
B2 (KEIKO R)	60
B3 (KEIKO B)	20
B4 (BTM UP)	A3
B5 (BTM DWN)	74
B6 (MDL UP)	A5
B7 (MDL DWN)	84
BA (KEIKO)	92
BB (KEIKO DWN)	82
BC (R TOP LMT)	96
C3 (B DOWN LMT)	19
C4 (LL LMT)	06
C5 (TM DIVID)	6E
C6 (BM DIVID)	41
C7 (DELAY TM)	0A
C8 (FAST TM)	30
C9 (OUT HYS OFF)	15
CA (OUT B HYS)	0D
D0 (SYSTEM)	01
E0 (DISPLAY MODE)	FF
EB (MODE)	00
EC (AWB MODE 3)	01
ED (AWB MODE 2)	00
EE (AWB MODE 1)	00

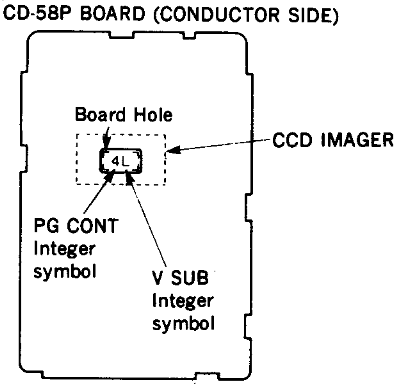
Table. 9-5.

[Adjustment Method]

1) Set the adjustment page to F with the adjustment remote control.
2) Set the adjustment data for each adjustment address to the initial value with the adjustment remote control.
3) Change the adjustment address in order to memorize the last adjustment data.

9-3-6. PG CONT/V SUB Adjustment (CD-58P Board)

Note: PG CONT specified voltage and V SUB specified volatage are indicated by the two digits on CCD imager.



- PG CONT

Integer symbol	Voltage (V)
0	0.5
1	1.0
2	1.5
3	2.0
4	2.5
5	3.0
6	3.5
7	4.0

- V SUB

Integer symbol	Voltage (V)	Integer symbol	Voltage (V)	Integer symbol	Voltage (V)
A	7.0	J	11.0	S	15.0
B	7.5	K	11.5	T	15.5
C	8.0	L	12.0	U	16.0
D	8.5	M	12.5	V	16.5
E	9.0	N	13.0	W	17.0
F	9.5	P	13.5	X	17.5
G	10.0	Q	14.0	Y	18.0
H	10.5	R	14.5	Z	18.5

Example: For 「4L」 display,
•PG CONT=2.5V
•V SUB=12.0V

Fig. 9-14.

A. PG CONT Adjustment

Object	Not used
Measurement point	Checkpoint array pin(A2)(PG CONT)
Measuring instrument	Digital voltmeter
Adjustment page	F
Adjustment address	13 (PG CONT)
Specified value	(CCD imager specified voltage) $\pm 0.1\text{V}_{DC}$

[Adjustment Method]

1) Set the adjustment page F and the adjustment address 13 with the adjustment remote control.
2) Change the adjustment data to be (CCD imager specified voltage) ± 0.1Vdc with the adjustment remote control.
3) Change the adjustment address to store the adjustment data.

B. V SUB Adjustment

Object	Not used
Measurement point	Checkpoint array pin(B4)(V SUB)
Measuring equipment	Digital voltmeter
Adjustment page	F
Adjustment address	12 (V SUB)
Specified value	(CCD imager specified voltage) ±3%

[Adjustment Method]

1) Set the adjustment page F and the adjustment address 12 with the adjustment remote control.
2) Change the adjustment data to be (CCD imager specified voltage) ±3% with the adjustment remote control.
3) Change the adjustment address to store the adjustment data.

9-3-7. HALL Adjustment (AF-85P Board)

Object	White pattern standard picture frame All black (Put a black cap over lens)
Measurement point	CN801
Measuring instrument	AF microcomputer data reader jig
Adjustment page	F
Adjustment address	1B (HALL GAIN) 1C (HALL OFFSET)
Specified value	White pattern : C0±1 All black : 03±2

[Adjustment Method]

1) Set the adjustment page to F with the adjustment remote control.
2) Set the adjustment address EB and the adjustment data 05 with the adjustment remote control.
3) Change the adjustment data of address 1B and 1C, so that the data of white pattern is C0±1, all black is 03±2.
4) Change the adjustment address to store the adjustment data.

9-3-8. IRIS Adjustment (VC-94P Board)

Object	Color bar chart standard picture frame
Filter	ND filter: 0.5 (0.1+0.4)
Measurement point	Checkpoint array pin (B11) (IRIS OUT)
Measuring instrument	Oscilloscope
Adjustment page	F
Adjustment address	19 (IRIS)
Specified value	150±10 mV

[Adjustment Method]

1) Select the adjustment page F and the adjustment address 19 with the adjustment remote control.
2) With no ND filter attached, change the adjustment data with the adjustment control to adjust the IRIS OUT signal level to 150±10 mV.
3) Attach the ND filter 0.5 (0.1+0.4) in front of the lens and check that the signal level changes smoothly.
4) Remove the ND filter and check that the signal level is 150±20 mV.
5) When the specified value is not met, repeat the steps 2) through 4).
6) Change the adjustment address in order to store the adjustment data.

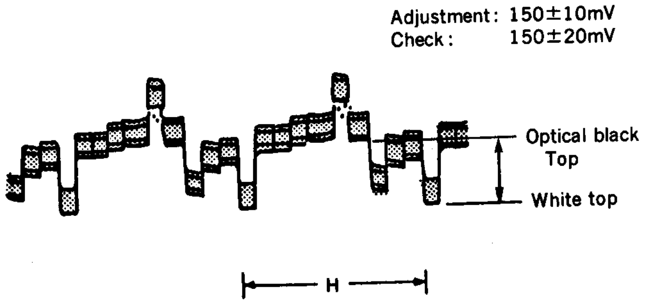


Fig. 9-15.

9-3-9. AGC Adjustment (VC-94P Board)

Note : When there is much noise, measure by inserting 5.6kΩ resistance.

Object	Color bar chart standard picture frame
Measurement point	Checkpoint array pin (B3) (Y (LPF) OUT)
Measuring instrument	Oscilloscope
Adjustment page	F
Adjustment address	1A (AGC)
Specified value	180±5 mV

[Adjustment Method]

1) Select the adjustment page F and the adjustment address 1A with the adjustment remote control.
2) Change the adjustment data with the adjustment remote control to set the Y (LPF) signal level to 180±5 mV.
3) Change the adjustment address in order to store the adjustment data.

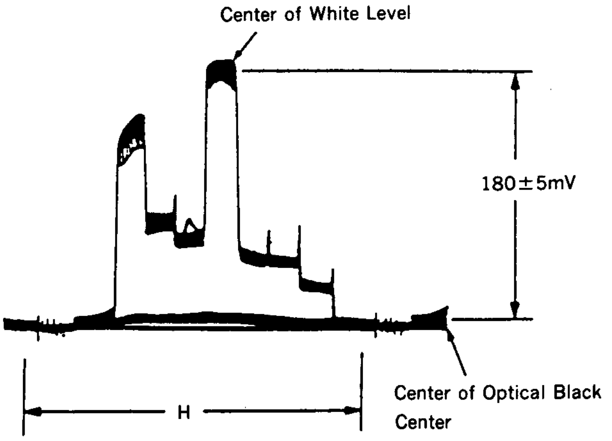


Fig. 9-16.

9-3-10. Matrix Adjustment

(1) Y1 Gain Adjustment (VC-94P Board)

Object	Color bar chart standard picture frame
Measurement point	Checkpoint array pin(A5)(VAP OUT)
Measuring instrument	Oscilloscope
Adjustment page	F
Adjustment address	07 (Y_1 Gain)
Specified value	$Y_0 - Y_1 = 0 \pm 5$mV

[Preparation]

1) Short the checkpoint array pin(B8)(Y_2 Gain) and pin(B5) (VAP SLICE) with GND.

[Adjustment Method]

1) Select the adjustment page F with the adjustment remote control.
2) Select the adjustment address 0F by the adjustment remote control and preset the adjustment data to be 00. (VAP GAIN : MAX)
3) Select the adjustment address 07 by the adjustment remote control.
4) Change the adjustment data and set the $Y_0 - Y_1$ waveform to be a straight line. (There should not be difference.)
5) Change the adjustment address in order to store the adjustment data.
6) Open the checkpoint array pin(B8)and pin(B5) .

Note : After the adjustment, be sure to adjust the matrix (2) Y_2 Gain Adjustment.

(2) Y_2 Gain Adjustment (VC-94P Board)

Object	Color bar chart standard picture frame
Measurement point	Checkpoint array pin A5 (VAP OUT)
Measuring instrument	Oscilloscope
Adjustment page	F
Adjustment address	06 (Y_2 GAIN)
Specified value	0±5mV

[Preparation]

1) Short the chickpoint array pin(B5)(VAP SLICE) with GND.

[Adjustment Method]

1) Select the adjustment page F by the adjustment remote control.
2) Select the adjustment address 0F by the adjustment remote control and preset the adjustment data to be 00. (VAP GAIN : MAX)
3) Select the adjustment address 06 by the adjustment remote control.
4) Change the adjustment data and set the $(Y_1 - \frac{Y_0 + Y_2}{2})$ waveform to be a straight line. (There should not be difference.)
5) Select the adjustment address 0F by the adjustment remote control and set the adjustment data to be 7A.
6) Change the adjustment address in order to store the adjustment data.
7) Open the checkpoint array pin(B5) .

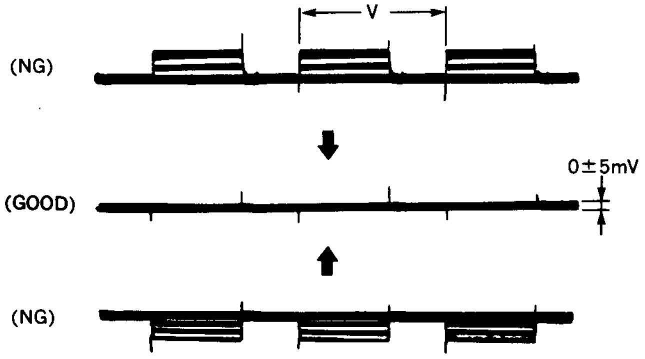


Fig. 9-17.

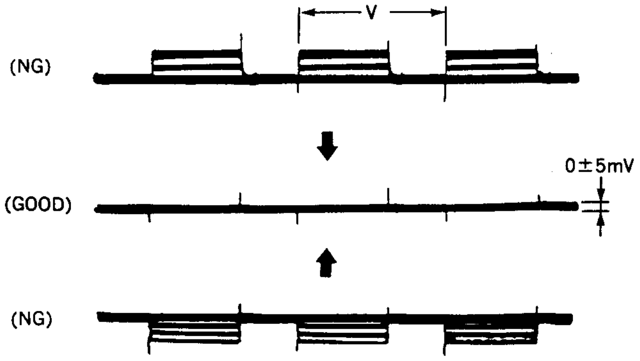


Fig. 9-18.

(3) C_1 Gain Adjustment

Object	Color bar chart standard picture frame
Measurement point	VIDEO OUT terminal
Measuring instrument	Vectorscope
Adjustment page	F
Adjustment address	03 (C_1 GAIN)
Specified value	Minimize the divided bright point. (Cyan, green ···Within 2.0 mm Magenta ······ Within 1.0 mm Others ········· Within 0.5 mm)

[Adjustment Method]

1) Select the adjustment page F and the adjustment address 03 by the adjustment remote control.
2) Change the adjustment data to coincide each color bright point.
3) Change the adjustment address in order to store the adjustment data.

Specified Values When Vectorscope is used.

(Specified value :Cyan, Green. . . . Within 2.0mm
Magenta . . . . . . Within 1.0mm
Others . . . . Within 0.5mm)

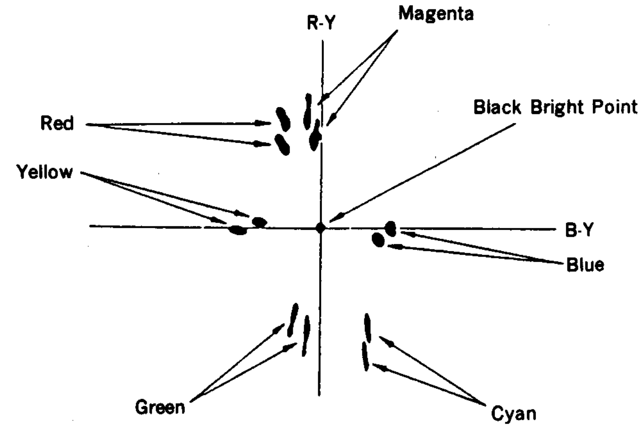


Fig. 9-19.

9-3-11. Y_H Level Adjustment (VC-94P Board)

Object	Color bar chart standard picture frame
Measurement point	Checkpoint array pin Ⓐ6 (TP)
Measuring instrument	Oscilloscope
Adjustment page	F
Adjustment address	08 (Y_H GAIN)
Specified value	0±5mV

[Adjustment Method]

1) Select the adjustment page F and the adjustment address 08 by the adjustment remote control.
2) Change the adjustment data·by the adjustment remote control in order that the output is a straght line. (There should not be difference : 0+5mV)
3) Change the adjustment address in order to store the adjustment data.

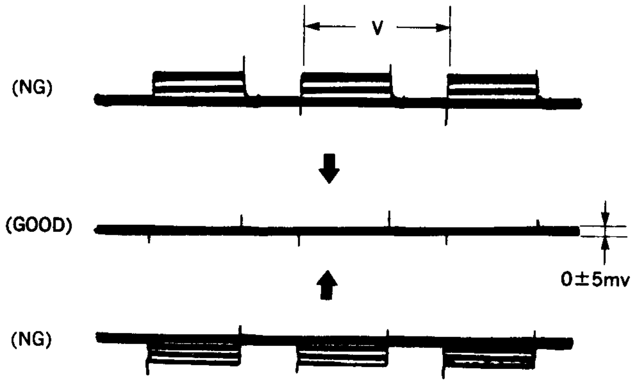


Fig. 9-20.

9-3-12. Chroma Level Adjustment (VC-94P Borad)

Object	Color bar chart standard picture frame
Measurement point	Checkpoint array pin Ⓐ7 (WB-G)
Measuring instrument	Oscilloscope
Adjustment page	F
Adjustment address	11 (C LEVEL)
Specified value	320±20mV

[Adjustment Method]

1) Select the adjustment page F and the adjustment address 11 with the adjustment remote control.
2) Change the adjustment data with the adjustment remote control to adjust the White level to 320±20 mV.
3) Change the adjustment address in order to store the adjustment data.

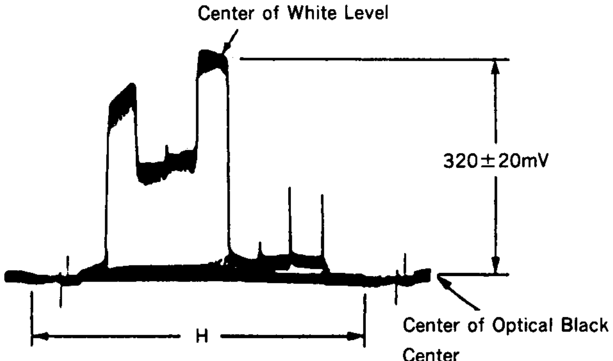


Fig. 9-21.

9-3-13. Sync. Level Adjustment (VC-94P Board)

Object	All black (Cover the lens with a black cap.)
Measurement point	CN307 pin ① (Y OUT) or checkpoint array pin Ⓐ8 (CAM Y)
Measuring instrument	Oscilloscope
Adjustment page	F
Adjustment address	16 (SYNC LEVEL)
Specified value	150±5mV

[Adjustment Method]

1) Select the adjustment page F and the adjustment address 16 with the adjustment remote control.
2) Change the adjustment data with the adjustment remote control to adjust the sync. level to 150±5mV.
3) Change the adjustment address in order to store the adjustment data.

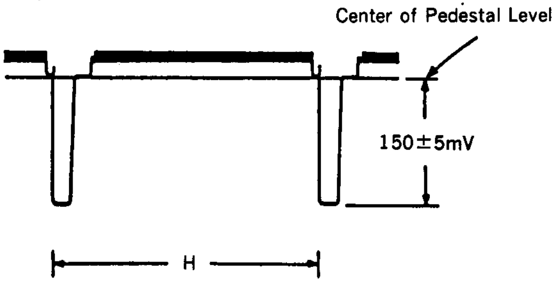


Fig. 9-22.

9-3-14. Setup Adjustment (VC-94P Board)

Object	All black (Cover the lens with a black cap.)
Measurement point	CN307 pin ① (Y OUT) or checkpoint array pin (A8)(CAM Y)
Measuring instrument	Oscilloscope
Adjustment page	F
Adjustment address	10 (SET UP) 18 (MAX GAIN)
Specified value	15±5mV

[Adjustment Method]

1) Select the adjustment page F with the adjustment remote control.
2) Select the adjustment address 18 with the adjustment remote control, make note of the adjustment data of this address (data F), and then, set the adjustment data to 00.
3) Select the adjustment address 10 with the adjustment remote control.
4) Change the adjustment data with the adjustment remote control to adjust the setup level to 15±5mV.
5) Select the adjustment address 18 and enter to the adjustment data F.
6) Change the adjustment address in order to store the adjustment data.

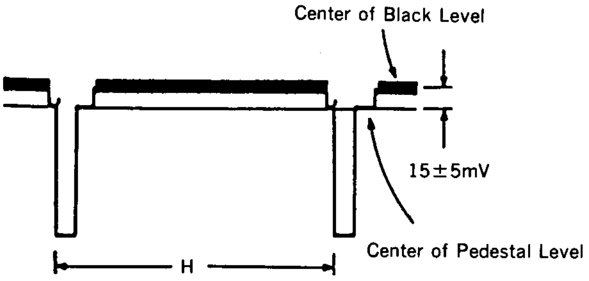


Fig. 9-23.

9-3-15. White Clip Adjustment (VC-94P Board)

Object	Color bar chart standard picture frame
Measurement point	CN307 pin ① (Y OUT) or checkpoint array pin (A8)(CAM Y)
Measuring instrument	Oscilloscope
Adjustment page	F
Adjustment address	15 (WC) 0E (Y LEVEL)
Specified value	420±10mV

[Adjustment Method]

1) Select the adjustment page F with the adjustment remote control.
2) Select the adjustment address 0E with the adjustment remote control, make note of the adjustment data of this address (data G), and then, set the adjustment data to FF.
3) Set the adjustment address to 15 with the adjustment remote control.
4) Change the adjustment data with the adjustment remote control to adjust the white clip level to 420±10mV.
5) Select the adjustment address 0E and enter to adjustment data G.
6) Change the adjustment address in order to store the adjustment data.
7) Make Y level adjustment as described in 9-3-16.

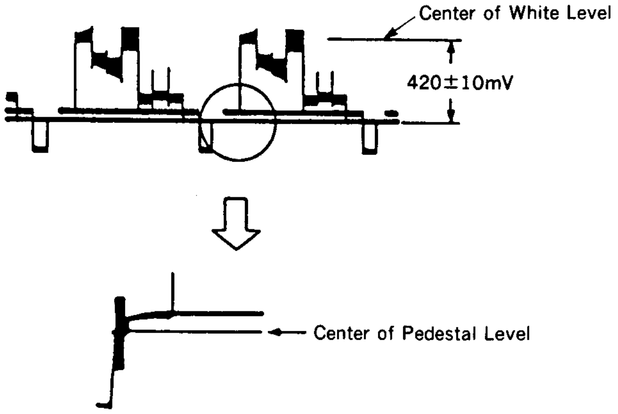


Fig. 9-24.

9-3-16. Y Level Adjustment (VC-94P Board)

Object	Color bar chart standard picture frame
Measurement point	CN307 pin① (Y OUT) or checkpoint array pin(A8)(CAM Y)
Measuring instrument	Oscilloscope
Adjustment page	F
Adjustment address	0E (Y LEVEL)
Specified value	330±5mV

[Adjustment Method]

1) Check that the specified value in "9-3-15 White Clip Adjustment" is met.
2) Select the adjustment page F and the adjustment address 0E with the adjustment remote control.
3) Change the adjustment data with the adjustment remote control and adjust the Y signal level to 330±5mV.
4) Change the adjustment address in order to store the adjusment data.

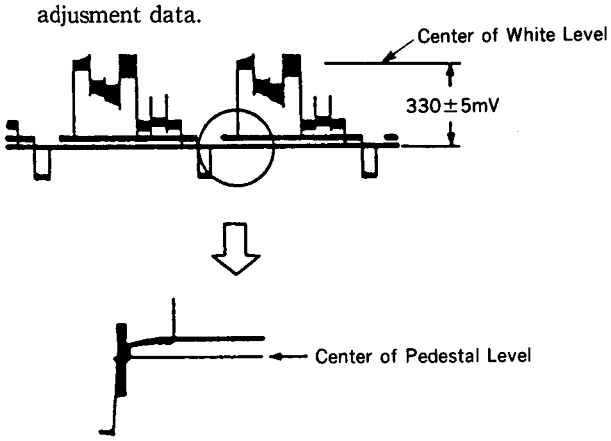


Fig. 9-25.

9-3-17. H Aperture Adjustment (VC-94P Board)

Object	Color bar chart standard picture frame
Measurement point	CN307 pin① (Y OUT) or checkpoint array pin(A8)(CAM Y)
Measuring instrument	Oscilloscope
Adjustment page	F
Adjustment address	0D (SHP LEVEL)
Specified value	40±5mV

[Adjustment Method]

1) Turn the focusing ring to maximize the aperture level (waveform peak).
2) Select the adjustment page F and the adjustment address 0D with the adjustment remote control.
3) Change the adjustment data with the adjustment remote control to set the aperture level (lower peak between "green" and "white") to a point 40±5mV above the pedestal level.
4) Change the adjustment address in order to store the adjustment data.

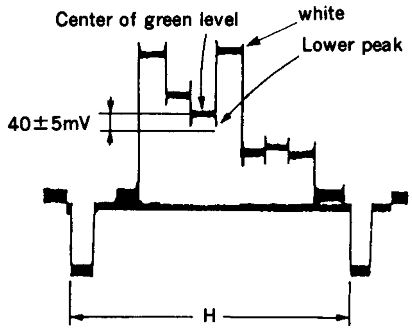


Fig. 9-26.

9-3-18. Max. Gain Adjustment (VC-94P Board)

Object	Color bar chart standard picture frame
Filter	ND filter: 2.6 (0.3+0.4+0.9+1.0)
Measurement point	CN307 pin ① (Y OUT) or checkpoint array pin (A8)(CAM Y)
Measuring instrument	Oscilloscope
Adjustment page	F
Adjustment address	18 (MAX GAIN)
Specified value	150±5mV

[Adjustment Method]

1) Cover the lens with the ND filter 2.6 (0.3+0.4+0.9+1.0).
2) Select the adjustment page F and the adjustment address 18 with the adjustment remote control.
3) Change the adjustment address with the adjustment remote control to adjust the Y signal level to 150±5mV.
4) Change the adjustment address in order to store the adjustment data.

Note: Although the ND filter is combined by using 4 pcs, if your ND filter is combined by using 3 pcs or less, resulting in 2.6, this combination should be available.

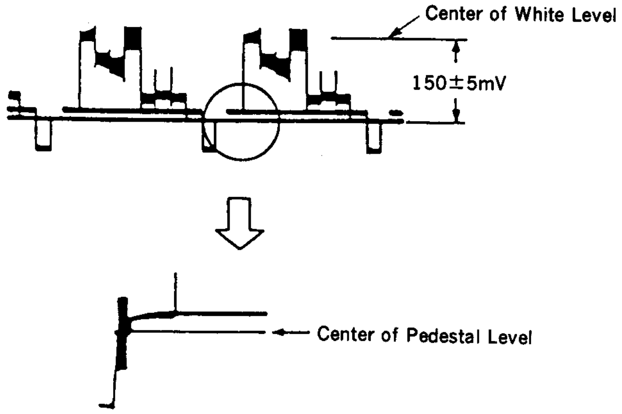


Fig. 9-27.

9-3-19. Burst Level Adjustment (VC-94P Board)

Object	All black (Cover the lens with a black cap.)
Measurement point	CN307 pin ③ (C OUT) or checkpoint array pin (A10) (CAM C)
Measuring instrument	Oscilloscope
Adjustment page	F
Adjustment address	17 (BURST LEVEL)
Specified value	150±5mVp-p

[Adjustment Method]

1) Select the adjustment page F and the adjustment address 17 with the adjustment remote control.
2) Change the adjustment data with the adjustment remote control to adjust the burst level to 150±5mVp-p.
3) Change the adjustment address in order to store the adjustment data.

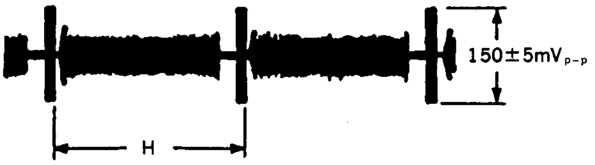


Fig. 9-28.

9-3-20 (A). Pre-white Balance Adjustment (With Vectorscope)

Object	All white pattern
Measurement point	VIDEO OUT terminal of the video block
Measuring instrument	Vectorscope
Adjustment page	F
Adjustment address	05 (R GAIN) 04 (B GAIN)
Specified value	The center of a white bright point must be within a circle of ϕ 1 mm centering around the origin

[Adjustment Method]

1) Maximize the gain of vectorscope.
2) Select the adjustment page F and the adjustment address 05 with the adjustment remote control.
3) Change the adjustment data with the adjustment remote control to coincide the white bright point with the origin.
4) Select the adjustment address 04.
5) Change the adjustment data to coincide the white bright point with the origin.
6) Repeat the steps 2) through 5).
7) Return the gain of vectorscope to CAL, and make sure that center of the bright point is located inside a circle of 1 mm diameter apart from the origin.
8) Change the adjustment address in order to store the adjustment data.

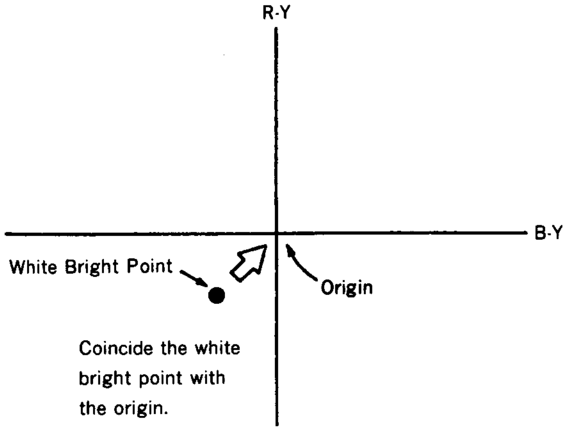


Fig. 9-29.

9-3-20 (B). Pre-white Balance Adjustment (With Oscilloscope) (VC-94P Board)

Object	All white pattern
Measurement point	CN307 pin ③ (C OUT) or checkpoint array pin (A10) (CAM C)
Measuring instrument	Oscilloscope
Adjustment page	F
Adjustment address	05 (R GAIN) 04 (B GAIN)
Specified value	Chroma signal amplitude minimum

[Adjustment Method]

1) Select the adjustment page F and the adjustment address 05 with the adjustment remote control.
2) Change the adjustment data with the adjustment remote control to minimize a chroma signal amplitude.
3) Select the adjustment address 04.
4) Change the adjustment data to minimize the chroma signal amplitude.
5) Repeat the steps 1) through 4).
6) Change the adjustment address in order to store the adjustment data.

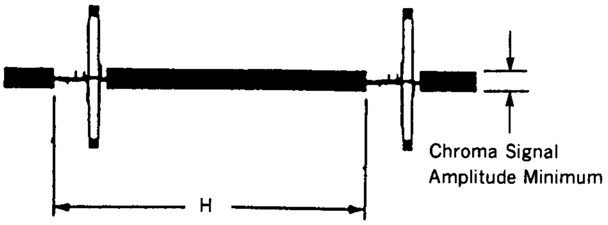


Fig. 9-30.

9-3-21. Color Reproducibility Adjustment (With Vectorscope)

Object	Color bar chart standard picture frame
Measurement point	VIDEO OUT terminal of the video block
Measuring instrument	Vectorscope
Adjustment page	F
Adjustment address	09 (R-Y GAIN) 0A (B-Y GAIN) 0B (R-Y HUE) 0C (B-Y HUE)
Specified value	All color bright points must be within a color reproduction frame.

Note : Burst level adjustment and pre-white balance adjustment must have been completed.

[Adjustment Method]

1) Set the adjustment page F with the adjustment remote control.
2) Change the adjustment data of each adjustment address with the adjustment remote control to collect all the color bright points within the color reproduction frame.
3) Change the adjustment address in order to store the adjustment data.

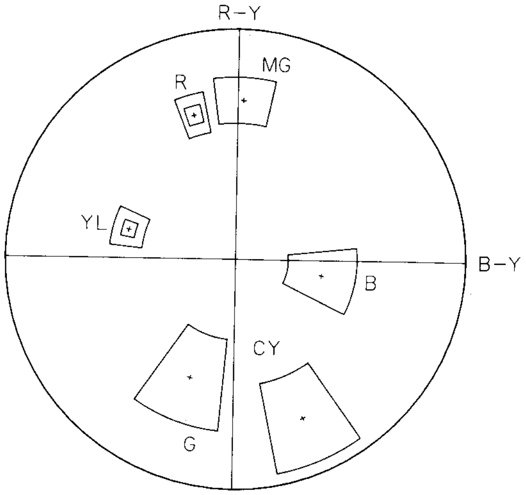


Fig. 9-31.

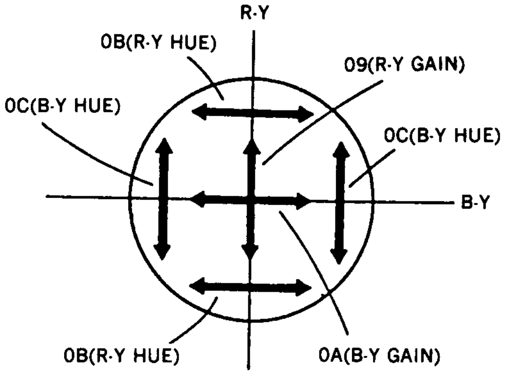


Fig. 9-32. Adjustment Addresses and Bright Point Moving Directions

9-3-22. Auto White Balance Adjustment

Note 1: Be sure to make "preset adjustment" and "auto white balance adjustment" in that order.

(1) Preset Adjustment

Object	White pattern standard picture frame
Adjustment page	F
Adjustment address	EE (AWB MODE 1)

Note 1 : Make preset adjustment 30 seconds or more after turning on the power.

Note 2 : When redoing preset adjustment, turn off the power once, and then, turn it on again.

[Adjustment Method]

1) Turn off/on the power.
2) Obtain a picture of white pattern for over five seconds. (AF switch is turned off.)
3) Select the adjustment page F with the adjustment remote control.
4) Select the adjustment address EE by the adjustment remote control and set the adjustment data to be 01.
5) Change the adjustment address in order to store the adjustment data. (3200K data fetch 1)
6) Select the adjustment address EE by the adjustment remote control and set the adjustment data to be 23.
7) Change the adjustment address in order to store the adjustment data. (3200K data fetch 2)
8) Check that the LANC data is changed and the adjustment address 95 is selected.
9) Select the adjustment address EE by the adjustment remote control and set the adjustment data to be 00.
10) Change the adjustment address in order to store the adjustment data.
11) Make auto white balance adjustment.

(2) Auto White Balance Adjustment

Note 1 : Be sure to make this adjustment after preset adjustment.

Object	White pattern standard picture frame
Filter	Color temperature compensation filter C14 (C12+C2)
Measuring instrument	Vectorscope
Measurement point	VIDEO OUT terminal
Adjustment page	F
Adjustment address	01 (R CONT) 02 (B CONT) 98 (START R) 99 (START B) 9A (R OUT DOOR) 9B (B OUT DOOR) A0 (Ra) A1 (Rb) A2 (Rc) A3 (Ba) A4 (Bb) A5 (Bc) A6 (R/B TOP) A7 (R/B MDL) A8 (R/B BTM) A9 (B/R TOP) AA (B/R MDL) AB (B/R BTM) B0 (TOP SLP R) B8 (TOP UP) B9 (TOP DWN) BD (R DWN LMT) BE (B DWN LMT) BF (B IN TOP) C0 (B IN MAX) C1 (B OUT MIN) C2 (B OUT DWN)
Specified value	The white and black bright points must coincide.

[Adjustment Method]

1) Select the adjustment page F with the adjustment remote control.
2) Select the adjustment address EE (AWB MODE1) with the adjustment remote control and enter the adjustment data 10. (Set of WB DIRECT)
3) Cover the lens with the C14 filter.
4) Change the adjustment data of the adjustment addresses 01 and 02 with the adjustment remote control to coincide the white bright point with the origin.
   At this time, assume the data of the adjustment address 01 as Rc14 and that of the adjustment address 02 as Bc14.

5) Input the value on the AWB adjustment data list (Refer to page 199) from the value of Rcl4 and Bcl4 to each address, and then proceed to the item 16). If the value does not come under the list, caluculate the adjustment data by the calculation from item 6).

6) Make that the adjustment address 01 data of the adjustment remote control on the item 4) is C_1 and the adjustment address 02 data is C_2.

7) Convert C_1 into a decimal number to assume it as C_1', and C_2 as well as C_2'. (Refer to Table 9-4 "Hexadecimal-Decimal Conversion Table")

8) Obtain D_{9A}' anb D_{9B}' by the following formula.

$$D_{9A}'=C_1'+2 \qquad D_{9B}'=C_2'+6$$

9) Convert D_{9A}' and D_{9B}' into a hexadecimal number and assume its value as D_{9A} and D_{9B}. (Round fractions below a decimal number to the nearest whole number)

10) Select the adjustment address 9A and enter the adjustment data D_{9A}.

11) Select the adjustment address 9B and enter the adjustment data D_{9B}.

12) Obtain A and B in the hexadecimal numbers by the following formula, and convert them into the decimal numbers. The values are A′ and B′.

$$A=5A-D_{9A}$$
$$B=D_{9B}-50$$

13) Obtain the adjustment data of each adjustment address in the decimal numbers by the following formula.

$$D_{A0}'=90-A'\times 1.12$$
$$D_{A1}'=D_{9A}'$$
$$D_{A2}'=90-A'\times 0.593$$
$$D_{98}'=D_{A2}'$$
$$D_{BE}'=B'\times 2+80$$
$$D_{BF}'=D_{9B}'$$
$$D_{C0}'=B'\times 0.84+80$$
$$D_{C1}'=D_{C0}'$$
$$D_{C2}'=B'\times 0.3+80$$
$$D_{A3}'=B'\times 1.34+80$$
$$D_{99}'=D_{A5}'$$
$$D_{A4}'=D_{9B}'$$
$$D_{A5}'=B\times 0.467+80$$
$$D_{BD}=90-A'\times 1.7$$

14) The above items, calculate by decimal and input by hexadecimal.

15) The below items, calculate by hexadecimal and input the adjustment data to each adjustment address.

$$D_{A6}=\frac{(D_{A1}-D_{A0})\times 40}{(D_{A3}-D_{A4})}$$
$$D_{A7}=\frac{(D_{A2}-D_{A1})\times 40}{(D_{A4}-D_{A5})}$$
$$D_{A8}=\frac{(5A-D_{A2})\times 40}{(D_{A5}-50)}$$
$$D_{A9}=\frac{(D_{A3}-D_{A4})\times 10}{(D_{A1}-D_{A0})}$$
$$D_{AA}=\frac{(D_{A4}-D_{A5})\times 10}{(D_{A2}-D_{A1})}$$
$$D_{AB}=\frac{(D_{A5}-50)\times 10}{(5A-D_{A2})}$$
$$D_{B0}=D_{A9}$$
$$D_{B8}=\frac{(D_{A1}+0A)\times D_{A9}+D_{A4}\times 10}{40}$$
$$D_{B9}=\frac{(D_{A1}-11)\times D_{A9}+D_{A4}\times 10}{40}$$

16) Select the adjustment address EE and enter the adjustment data 00.

17) Change the adjustment address in order to store the adjustment data.

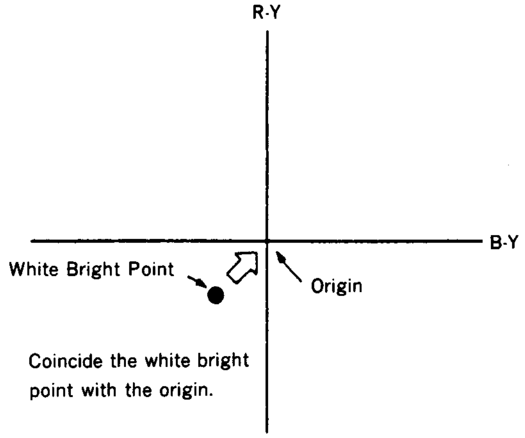


Fig. 9-33.

•AWB Adjustment Data Table

Rc14;Bc14		adr98	99	9A	9B	A0	A1	A2	A3	A4	A5	A6	A7	A8	A9	AA	AB	B0	B8	9	BD	BE	BF	C0	C1	C2
3D	78	4A	65	3F	7E	3C	3F	4A	8E	7E	65	C	1C	31	55	24	15	55	81	5D	2C	AC	7E	77	77	5E
3D	79	4A	66	3F	7F	3C	3F	4A	8F	7F	66	C	1C	2F	55	24	16	55	81	5D	2C	AE	7F	77	77	5E
3D	7A	4A	66	3F	80	3C	3F	4A	90	80	66	C	1B	2F	55	26	16	55	81	5D	2C	B0	80	78	78	5E
3D	7B	4A	67	3F	81	3C	3F	4A	92	81	67	B	1B	2D	5B	26	17	5B	88	61	2C	B2	81	79	79	5F
3D	7C	4A	67	3F	82	3C	3F	4A	93	82	67	B	1A	2D	5B	27	17	5B	88	62	2C	B4	82	7A	7A	5F
3D	7D	4A	68	3F	83	3C	3F	4A	94	83	68	B	1A	2B	5B	27	18	5B	88	62	2C	B6	83	7B	7B	5F
3D	7E	4A	68	3F	84	3C	3F	4A	96	84	68	B	19	2B	60	29	18	60	8F	66	2C	B8	84	7C	7C	60
3D	7F	4A	69	3F	85	3C	3F	4A	97	85	69	B	19	29	60	29	19	60	8F	66	2C	BA	85	7D	7D	60
3D	80	4A	69	3F	86	3C	3F	4A	98	86	69	B	18	29	60	2A	19	60	8F	67	2C	BC	86	7D	7D	60
3D	81	4A	6A	3F	87	3C	3F	4A	9A	87	6A	A	18	27	65	2A	1A	65	95	6B	2C	BE	87	7E	7E	61
3D	82	4A	6A	3F	88	3C	3F	4A	9B	88	6A	A	17	27	65	2C	1A	65	96	6B	2C	C0	88	7F	7F	61
3D	83	4A	6B	3F	89	3C	3F	4A	9C	89	6B	A	17	26	65	2C	1B	65	96	6B	2C	C2	89	80	80	61
3D	84	4A	6B	3F	8A	3C	3F	4A	9E	8A	6B	A	17	26	6B	2D	1B	6B	9C	6F	2C	C4	8A	81	81	61
3D	85	4A	6C	3F	8B	3C	3F	4A	9F	8B	6C	A	17	25	6B	2D	1C	6B	9C	6F	2C	C6	8B	82	82	62
3D	86	4A	6C	3F	8C	3C	3F	4A	A0	8C	6C	A	16	25	6B	2F	1C	6B	9D	70	2C	C8	8C	82	82	62
3D	87	4A	6C	3F	8D	3C	3F	4A	A2	8D	6C	9	15	25	70	30	1C	70	A3	74	2C	CA	8D	83	83	62
3D	88	4A	6D	3F	8E	3C	3F	4A	A3	8E	6D	9	15	23	70	30	1D	70	A3	74	2C	CC	8E	84	84	63
3D	89	4A	6D	3F	8F	3C	3F	4A	A4	8F	6D	9	15	23	70	31	1D	70	A4	74	2C	CE	8F	85	85	63
3D	8A	4A	6E	3F	90	3C	3F	4A	A6	90	6E	9	15	22	75	31	1E	75	AA	78	2C	D0	90	86	86	63
3D	8B	4A	6E	3F	91	3C	3F	4A	A7	91	6E	9	14	22	75	33	1E	75	AA	79	2C	D2	91	87	87	64
3E	78	4B	65	40	7E	3D	40	4B	8E	7E	65	C	1C	2E	55	24	16	55	82	5E	2E	AC	7E	77	77	5E
3E	79	4B	66	40	7F	3D	40	4B	8F	7F	66	C	1C	2C	55	24	17	55	82	5E	2E	AE	7F	77	77	5E
3E	7A	4B	66	40	80	3D	40	4B	90	80	66	C	1B	2C	55	26	17	55	83	5F	2E	B0	80	78	78	5E
3E	7B	4B	67	40	81	3D	40	4B	92	81	67	B	1B	2A	5B	26	19	5B	89	63	2E	B2	81	79	79	5F
3E	7C	4B	67	40	82	3D	40	4B	93	82	67	B	1A	2A	5B	27	19	5B	89	63	2E	B4	82	7A	7A	5F
3E	7D	4B	68	40	83	3D	40	4B	94	83	68	B	1A	28	5B	27	1A	5B	8A	63	2E	B6	83	7B	7B	5F
3E	7E	4B	68	40	84	3D	40	4B	96	84	68	B	19	28	60	29	1A	60	90	68	2E	B8	84	7C	7C	60
3E	7F	4B	69	40	85	3D	40	4B	97	85	69	B	19	26	60	29	1B	60	90	68	2E	BA	85	7D	7D	60
3E	80	4B	69	40	86	3D	40	4B	98	86	69	B	18	26	60	2A	1B	60	91	68	2E	BC	86	7D	7D	60
3E	81	4B	6A	40	87	3D	40	4B	9A	87	6A	A	18	25	65	2A	1C	65	97	6C	2E	BE	87	7E	7E	61
3E	82	4B	6A	40	88	3D	40	4B	9B	88	6A	A	17	25	65	2C	1C	65	97	6C	2E	C0	88	7F	7F	61
3E	83	4B	6B	40	89	3D	40	4B	9C	89	6B	A	17	24	65	2C	1D	65	97	6D	2E	C2	89	80	80	61
3E	84	4B	6B	40	8A	3D	40	4B	9E	8A	6B	A	17	24	6B	2D	1D	6B	9E	71	2E	C4	8A	81	81	61
3E	85	4B	6C	40	8B	3D	40	4B	9F	8B	6C	A	17	22	6B	2D	1E	6B	9E	71	2E	C6	8B	82	82	62
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3F	79	4B	66	41	7F	3E	41	4B	8F	7F	66	C	1A	2C	55	28	17	55	84	60	30	AE	7F	77	77	5E
3F	7A	4B	66	41	80	3E	41	4B	90	80	66	C	19	2C	55	2A	17	55	84	60	30	B0	80	78	78	5E
3F	7B	4B	67	41	81	3E	41	4B	92	81	67	B	19	2A	5B	2A	19	5B	8B	64	30	B2	81	79	79	5F
3F	7C	4B	67	41	82	3E	41	4B	93	82	67	B	18	2A	5B	2B	19	5B	8B	65	30	B4	82	7A	7A	5F
3F	7D	4B	68	41	83	3E	41	4B	94	83	68	B	18	28	5B	2B	1A	5B	8B	65	30	B6	83	7B	7B	5F
3F	7E	4B	68	41	84	3E	41	4B	96	84	68	B	17	28	60	2D	1A	60	92	69	30	B8	84	7C	7C	60
3F	7F	4B	69	41	85	3E	41	4B	97	85	69	B	17	26	60	2D	1B	60	92	69	30	BA	85	7D	7D	60
3F	80	4B	69	41	86	3E	41	4B	98	86	69	B	16	26	60	2E	1B	60	92	6A	30	BC	86	7D	7D	60
3F	81	4B	6A	41	87	3E	41	4B	9A	87	6A	A	16	25	65	2E	1C	65	99	6E	30	BE	87	7E	7E	61
3F	82	4B	6A	41	88	3E	41	4B	9B	88	6A	A	15	25	65	30	1C	65	99	6E	30	C0	88	7F	7F	61
3F	83	4B	6B	41	89	3E	41	4B	9C	89	6B	A	15	24	65	30	1D	65	99	6E	30	C2	89	80	80	61
3F	84	4B	6B	41	8A	3E	41	4B	9E	8A	6B	A	15	24	6B	32	1D	6B	A0	73	30	C4	8A	81	81	61
3F	85	4B	6C	41	8B	3E	41	4B	9F	8B	6C	A	15	22	6B	32	1E	6B	A0	73	30	C6	8B	82	82	62

Rc14	Bc14	adr98	99	9A	9B	A0	A1	A2	A3	A4	A5	A6	A7	A8	A9	AA	AB	B0	B8	L	BD	BE	BF	C0	C1	C2
3F	86	4B	6C	41	8C	3E	41	4B	A0	8C	6C	A	14	22	6B	33	1E	6B	A0	73	30	C8	8C	82	82	62
3F	87	4B	6C	41	8D	3E	41	4B	A2	8D	6C	9	13	22	70	35	1E	70	A7	77	30	CA	8D	83	83	62
3F	88	4B	6D	41	8E	3E	41	4B	A3	8E	6D	9	13	21	70	35	1F	70	A7	78	30	CC	8E	84	84	63
3F	89	4B	6D	41	8F	3E	41	4B	A4	8F	6D	9	13	21	70	36	1F	70	A7	78	30	CE	8F	85	85	63
3F	8A	4B	6E	41	90	3E	41	4B	A6	90	6E	9	13	20	75	36	20	75	AE	7C	30	D0	90	86	86	63
3F	8B	4B	6E	41	91	3E	41	4B	A7	91	6E	9	12	20	75	38	20	75	AE	7C	30	D2	91	87	87	64
40	78	4C	65	42	7E	3F	42	4C	8E	7E	65	C	1A	2B	55	28	18	55	85	61	31	AC	7E	77	77	5E
40	79	4C	66	42	7F	3F	42	4C	8F	7F	66	C	1A	29	55	28	19	55	85	61	31	AE	7F	77	77	5E
40	7A	4C	66	42	80	3F	42	4C	90	80	66	C	19	29	55	2A	19	55	85	61	31	B0	80	78	78	5E
40	7B	4C	67	42	81	3F	42	4C	92	81	67	B	19	27	5B	2A	1A	5B	8C	66	31	B2	81	79	79	5F
40	7C	4C	67	42	82	3F	42	4C	93	82	67	B	18	27	5B	2B	1A	5B	8C	66	31	B4	82	7A	7A	5F
40	7D	4C	68	42	83	3F	42	4C	94	83	68	B	18	25	5B	2B	1B	5B	8C	66	31	B6	83	7B	7B	5F
40	7E	4C	68	42	84	3F	42	4C	96	84	68	B	17	25	60	2D	1B	60	93	6B	31	B8	84	7C	7C	60
40	7F	4C	69	42	85	3F	42	4C	97	85	69	B	17	24	60	2D	1D	60	93	6B	31	BA	85	7D	7D	60
40	80	4C	69	42	86	3F	42	4C	98	86	69	B	16	24	60	2E	1D	60	94	6B	31	BC	86	7D	7D	60
40	81	4C	6A	42	87	3F	42	4C	9A	87	6A	A	16	22	65	2E	1E	65	9A	6F	31	BE	87	7E	7E	61
40	82	4C	6A	42	88	3F	42	4C	9B	88	6A	A	15	22	65	30	1E	65	9A	70	31	C0	88	7F	7F	61
40	83	4C	6B	42	89	3F	42	4C	9C	89	6B	A	15	21	65	30	1F	65	9B	70	31	C2	89	80	80	61
40	84	4C	6B	42	8A	3F	42	4C	9E	8A	6B	A	15	21	6B	32	1F	6B	A1	74	31	C4	8A	81	81	61
40	85	4C	6C	42	8B	3F	42	4C	9F	8B	6C	A	15	20	6B	32	20	6B	A1	74	31	C6	8B	82	82	62
40	86	4C	6C	42	8C	3F	42	4C	A0	8C	6C	A	14	20	6B	33	20	6B	A2	75	31	C8	8C	82	82	62
40	87	4C	6C	42	8D	3F	42	4C	A2	8D	6C	9	13	20	70	35	20	70	A8	79	31	CA	8D	83	83	62
40	88	4C	6D	42	8E	3F	42	4C	A3	8E	6D	9	13	1F	70	35	21	70	A9	79	31	CC	8E	84	84	63
40	89	4C	6D	42	8F	3F	42	4C	A4	8F	6D	9	13	1F	70	36	21	70	A9	7A	31	CE	8F	85	85	63
40	8A	4C	6E	42	90	3F	42	4C	A6	90	6E	9	13	1E	75	36	22	75	AF	7E	31	D0	90	86	86	63
40	8B	4C	6E	42	91	3F	42	4C	A7	91	6E	9	12	1E	75	38	22	75	B0	7E	31	D2	91	87	87	64
41	78	4C	65	43	7E	40	43	4C	8E	7E	65	C	17	2B	55	2C	18	55	86	62	33	AC	7E	77	77	5E
41	79	4C	66	43	7F	40	43	4C	8F	7F	66	C	17	29	55	2C	19	55	86	62	33	AE	7F	77	77	5E
41	7A	4C	66	43	80	40	43	4C	90	80	66	C	16	29	55	2E	19	55	87	63	33	B0	80	78	78	5E
41	7B	4C	67	43	81	40	43	4C	92	81	67	B	16	27	5B	2E	1A	5B	8D	67	33	B2	81	79	79	5F
41	7C	4C	67	43	82	40	43	4C	93	82	67	B	15	27	5B	30	1A	5B	8E	67	33	B4	82	7A	7A	5F
41	7D	4C	68	43	83	40	43	4C	94	83	68	B	15	25	5B	30	1B	5B	8E	68	33	B6	83	7B	7B	5F
41	7E	4C	68	43	84	40	43	4C	96	84	68	B	15	25	60	32	1B	60	95	6C	33	B8	84	7C	7C	60
41	7F	4C	69	43	85	40	43	4C	97	85	69	B	15	24	60	32	1D	60	95	6C	33	BA	85	7D	7D	60
41	80	4C	69	43	86	40	43	4C	98	86	69	B	14	24	60	34	1D	60	95	6D	33	BC	86	7D	7D	60
41	81	4C	6A	43	87	40	43	4C	9A	87	6A	A	14	22	65	34	1E	65	9C	71	33	BE	87	7E	7E	61
41	82	4C	6A	43	88	40	43	4C	9B	88	6A	A	13	22	65	35	1E	65	9C	71	33	C0	88	7F	7F	61
41	83	4C	6B	43	89	40	43	4C	9C	89	6B	A	13	21	65	35	1F	65	9C	71	33	C2	89	80	80	61
41	84	4C	6B	43	8A	40	43	4C	9E	8A	6B	A	13	21	6B	37	1F	6B	A3	76	33	C4	8A	81	81	61
41	85	4C	6C	43	8B	40	43	4C	9F	8B	6C	A	13	20	6B	37	20	6B	A3	76	33	C6	8B	82	82	62
41	86	4C	6C	43	8C	40	43	4C	A0	8C	6C	A	12	20	6B	39	20	6B	A3	76	33	C8	8C	82	82	62
41	87	4C	6C	43	8D	40	43	4C	A2	8D	6C	9	11	20	70	3B	20	70	AA	7B	33	CA	8D	83	83	62
41	88	4C	6D	43	8E	40	43	4C	A3	8E	6D	9	11	1F	70	3B	21	70	AA	7B	33	CC	8E	84	84	63
41	89	4C	6D	43	8F	40	43	4C	A4	8F	6D	9	11	1F	70	3C	21	70	AB	7B	33	CE	8F	85	85	63
41	8A	4C	6E	43	90	40	43	4C	A6	90	6E	9	11	1E	75	3C	22	75	B1	80	33	D0	90	86	86	63
41	8B	4C	6E	43	91	40	43	4C	A7	91	6E	9	10	1E	75	3E	22	75	B1	80	33	D2	91	87	87	64
42	78	4D	65	44	7E	41	44	4D	8E	7E	65	C	17	28	55	2C	1A	55	88	64	35	AC	7E	77	77	5E
42	79	4D	66	44	7F	41	44	4D	8F	7F	66	C	17	26	55	2C	1B	55	88	64	35	AE	7F	77	77	5E
42	7A	4D	66	44	80	41	44	4D	90	80	66	C	16	26	55	2E	1B	55	88	64	35	B0	80	78	78	5E
42	7B	4D	67	44	81	41	44	4D	92	81	67	B	16	24	5B	2E	1C	5B	8F	69	35	B2	81	79	79	5F
42	7C	4D	67	44	82	41	44	4D	93	82	67	B	15	24	5B	30	1C	5B	8F	69	35	B4	82	7A	7A	5F
42	7D	4D	68	44	83	41	44	4D	94	83	68	B	15	23	5B	30	1E	5B	8F	69	35	B6	83	7B	7B	5F
42	7E	4D	68	44	84	41	44	4D	96	84	68	B	15	23	60	32	1E	60	96	6E	35	B8	84	7C	7C	60
42	7F	4D	69	44	85	41	44	4D	97	85	69	B	15	21	60	32	1F	60	96	6E	35	BA	85	7D	7D	60

BF	C0	C1	C2
7E	77	77	5E
7F	77	77	5E
80	78	78	5E
81	79	79	5F
82	7A	7A	5F
83	7B	7B	5F
84	7C	7C	60
85	7D	7D	60
86	7D	7D	60
87	7E	7E	61
88	7F	7F	61
89	80	80	61
8A	81	81	61
8B	82	82	62
8C	82	82	62
8D	83	83	62
8E	84	84	63
8F	85	85	63
90	86	86	63
91	87	87	64
7E	77	77	5E
7F	77	77	5E
80	78	78	5E
81	79	79	5F
82	7A	7A	5F
83	7B	7B	5F
84	7C	7C	60
85	7D	7D	60
86	7D	7D	60
87	7E	7E	61
88	7F	7F	61
89	80	80	61
8A	81	81	61
8B	82	82	62
8C	82	82	62
8D	83	83	62
8E	84	84	63
8F	85	85	63
90	86	86	63
91	87	87	64
7E	77	77	5E
7F	77	77	5E
80	78	78	5E
81	79	79	5F
82	7A	7A	5F
83	7B	7B	5F
84	7C	7C	60
85	7D	7D	60
86	7D	7D	60
87	7E	7E	61
88	7F	7F	61
89	80	80	61
8A	81	81	61
8B	82	82	62

Rc14	Bc14	adr98	99	9A	9B	A0	A1	A2	A3	A4	A5	A6	A7	A8	A9	AA	AB	B0	D8	L	BD	BE	BF	C0	C1	C2
3F	86	4B	6C	41	8C	3E	41	4B	A0	8C	6C	A	14	22	6B	33	1E	6B	A0	73	30	C8	8C	82	82	62
3F	87	4B	6C	41	8D	3E	41	4B	A2	8D	6C	9	13	22	70	35	1E	70	A7	77	30	CA	8D	83	83	62
3F	88	4B	6D	41	8E	3E	41	4B	A3	8E	6D	9	13	21	70	35	1F	70	A7	78	30	CC	8E	84	84	63
3F	89	4B	6D	41	8F	3E	41	4B	A4	8F	6D	9	13	21	70	36	1F	70	A7	78	30	CE	8F	85	85	63
3F	8A	4B	6E	41	90	3E	41	4B	A6	90	6E	9	13	20	75	36	20	75	AE	7C	30	D0	90	86	86	63
3F	8B	4B	6E	41	91	3E	41	4B	A7	91	6E	9	12	20	75	38	20	75	AE	7C	30	D2	91	87	87	64
40	78	4C	65	42	7E	3F	42	4C	8E	7E	65	C	1A	2B	55	28	18	55	85	61	31	AC	7E	77	77	5E
40	79	4C	66	42	7F	3F	42	4C	8F	7F	66	C	1A	29	55	28	19	55	85	61	31	AE	7F	77	77	5E
40	7A	4C	66	42	80	3F	42	4C	90	80	66	C	19	29	55	2A	19	55	85	61	31	B0	80	78	78	5E
40	7B	4C	67	42	81	3F	42	4C	92	81	67	B	19	27	5B	2A	1A	5B	8C	66	31	B2	81	79	79	5F
40	7C	4C	67	42	82	3F	42	4C	93	82	67	B	18	27	5B	2B	1A	5B	8C	66	31	B4	82	7A	7A	5F
40	7D	4C	68	42	83	3F	42	4C	94	83	68	B	18	25	5B	2B	1B	5B	8C	66	31	B6	83	7B	7B	5F
40	7E	4C	68	42	84	3F	42	4C	96	84	68	B	17	25	60	2D	1B	60	93	6B	31	B8	84	7C	7C	60
40	7F	4C	69	42	85	3F	42	4C	97	85	69	B	17	24	60	2D	1D	60	93	6B	31	BA	85	7D	7D	60
40	80	4C	69	42	86	3F	42	4C	98	86	69	B	16	24	60	2E	1D	60	94	6B	31	BC	86	7D	7D	60
40	81	4C	6A	42	87	3F	42	4C	9A	87	6A	A	16	22	65	2E	1E	65	9A	6F	31	BE	87	7E	7E	61
40	82	4C	6A	42	88	3F	42	4C	9B	88	6A	A	15	22	65	30	1E	65	9A	70	31	C0	88	7F	7F	61
40	83	4C	6B	42	89	3F	42	4C	9C	89	6B	A	15	21	65	30	1F	65	9B	70	31	C2	89	80	80	61
40	84	4C	6B	42	8A	3F	42	4C	9E	8A	6B	A	15	21	6B	32	1F	6B	A1	74	31	C4	8A	81	81	61
40	85	4C	6C	42	8B	3F	42	4C	9F	8B	6C	A	15	20	6B	32	20	6B	A1	74	31	C6	8B	82	82	62
40	86	4C	6C	42	8C	3F	42	4C	A0	8C	6C	A	14	20	6B	33	20	6B	A2	75	31	C8	8C	82	82	62
40	87	4C	6C	42	8D	3F	42	4C	A2	8D	6C	9	13	20	70	35	20	70	A8	79	31	CA	8D	83	83	62
40	88	4C	6D	42	8E	3F	42	4C	A3	8E	6D	9	13	1F	70	35	21	70	A9	79	31	CC	8E	84	84	63
40	89	4C	6D	42	8F	3F	42	4C	A4	8F	6D	9	13	1F	70	36	21	70	A9	7A	31	CE	8F	85	85	63
40	8A	4C	6E	42	90	3F	42	4C	A6	90	6E	9	13	1E	75	36	22	75	AF	7E	31	D0	90	86	86	63
40	8B	4C	6E	42	91	3F	42	4C	A7	91	6E	9	12	1E	75	38	22	75	B0	7E	31	D2	91	87	87	64
41	78	4C	65	43	7E	40	43	4C	8E	7E	65	C	17	2B	55	2C	18	55	86	62	33	AC	7E	77	77	5E
41	79	4C	66	43	7F	40	43	4C	8F	7F	66	C	17	29	55	2C	19	55	86	62	33	AE	7F	77	77	5E
41	7A	4C	66	43	80	40	43	4C	90	80	66	C	16	29	55	2E	19	55	87	63	33	B0	80	78	78	5E
41	7B	4C	67	43	81	40	43	4C	92	81	67	B	16	27	5B	2E	1A	5B	8D	67	33	B2	81	79	79	5F
41	7C	4C	67	43	82	40	43	4C	93	82	67	B	15	27	5B	30	1A	5B	8E	67	33	B4	82	7A	7A	5F
41	7D	4C	68	43	83	40	43	4C	94	83	68	B	15	25	5B	30	1B	5B	8E	68	33	B6	83	7B	7B	5F
41	7E	4C	68	43	84	40	43	4C	96	84	68	B	15	25	60	32	1B	60	95	6C	33	B8	84	7C	7C	60
41	7F	4C	69	43	85	40	43	4C	97	85	69	B	15	24	60	32	1D	60	95	6C	33	BA	85	7D	7D	60
41	80	4C	69	43	86	40	43	4C	98	86	69	B	14	24	60	34	1D	60	95	6D	33	BC	86	7D	7D	60
41	81	4C	6A	43	87	40	43	4C	9A	87	6A	A	14	22	65	34	1E	65	9C	71	33	BE	87	7E	7E	61
41	82	4C	6A	43	88	40	43	4C	9B	88	6A	A	13	22	65	35	1E	65	9C	71	33	C0	88	7F	7F	61
41	83	4C	6B	43	89	40	43	4C	9C	89	6B	A	13	21	65	35	1F	65	9C	71	33	C2	89	80	80	61
41	84	4C	6B	43	8A	40	43	4C	9E	8A	6B	A	13	21	6B	37	1F	6B	A3	76	33	C4	8A	81	81	61
41	85	4C	6C	43	8B	40	43	4C	9F	8B	6C	A	13	20	6B	37	20	6B	A3	76	33	C6	8B	82	82	62
41	86	4C	6C	43	8C	40	43	4C	A0	8C	6C	A	12	20	6B	39	20	6B	A3	76	33	C8	8C	82	82	62
41	87	4C	6C	43	8D	40	43	4C	A2	8D	6C	9	11	20	70	3B	20	70	AA	7B	33	CA	8D	83	83	62
41	88	4C	6D	43	8E	40	43	4C	A3	8E	6D	9	11	1F	70	3B	21	70	AA	7B	33	CC	8E	84	84	63
41	89	4C	6D	43	8F	40	43	4C	A4	8F	6D	9	11	1F	70	3C	21	70	AB	7B	33	CE	8F	85	85	63
41	8A	4C	6E	43	90	40	43	4C	A6	90	6E	9	11	1E	75	3C	22	75	B1	80	33	D0	90	86	86	63
41	8B	4C	6E	43	91	40	43	4C	A7	91	6E	9	10	1E	75	3E	22	75	B1	80	33	D2	91	87	87	64
42	78	4D	65	44	7E	41	44	4D	8E	7E	65	C	17	28	55	2C	1A	55	88	64	35	AC	7E	77	77	5E
42	79	4D	66	44	7F	41	44	4D	8F	7F	66	C	17	26	55	2C	1B	55	88	64	35	AE	7F	77	77	5E
42	7A	4D	66	44	80	41	44	4D	90	80	66	C	16	26	55	2E	1B	55	88	64	35	B0	80	78	78	5E
42	7B	4D	67	44	81	41	44	4D	92	81	67	B	16	24	5B	2E	1C	5B	8F	69	35	B2	81	79	79	5F
42	7C	4D	67	44	82	41	44	4D	93	82	67	B	15	24	5B	30	1C	5B	8F	69	35	B4	82	7A	7A	5F
42	7D	4D	68	44	83	41	44	4D	94	83	68	B	15	23	5B	30	1E	5B	8F	69	35	B6	83	7B	7B	5F
42	7E	4D	68	44	84	41	44	4D	96	84	68	B	15	23	60	32	1E	60	96	6E	35	B8	84	7C	7C	60
42	7F	4D	69	44	85	41	44	4D	97	85	69	B	15	21	60	32	1F	60	96	6E	35	BA	85	7D	7D	60

Rc14;Bc14		adr98	99	9A	9B	A0	A1	A2	A3	A4	A5	A6	A7	A8	A9	AA	AB	B0	B8	B9	BD	BE	BF	C0	C1	C2
42	80	4D	69	44	86	41	44	4D	98	86	69	B	14	21	60	34	1F	60	97	6E	35	BC	86	7D	7D	60
42	81	4D	6A	44	87	41	44	4D	9A	87	6A	A	14	20	65	34	20	65	9D	73	35	BE	87	7E	7E	61
42	82	4D	6A	44	88	41	44	4D	9B	88	6A	A	13	20	65	35	20	65	9E	73	35	C0	88	7F	7F	61
42	83	4D	6B	44	89	41	44	4D	9C	89	6B	A	13	1F	65	35	21	65	9E	73	35	C2	89	80	80	61
42	84	4D	6B	44	8A	41	44	4D	9E	8A	6B	A	13	1F	6B	37	21	6B	A5	78	35	C4	8A	81	81	61
42	85	4D	6C	44	8B	41	44	4D	9F	8B	6C	A	13	1E	6B	37	22	6B	A5	78	35	C6	8B	82	82	62
42	86	4D	6C	44	8C	41	44	4D	A0	8C	6C	A	12	1E	6B	39	22	6B	A5	78	35	C8	8C	82	82	62
42	87	4D	6C	44	8D	41	44	4D	A2	8D	6C	9	11	1E	70	3B	22	70	AC	7D	35	CA	8D	83	83	62
42	88	4D	6D	44	8E	41	44	4D	A3	8E	6D	9	11	1D	70	3B	24	70	AC	7D	35	CC	8E	84	84	63
42	89	4D	6D	44	8F	41	44	4D	A4	8F	6D	9	11	1D	70	3C	24	70	AC	7D	35	CE	8F	85	85	63
42	8A	4D	6E	44	90	41	44	4D	A6	90	6E	9	11	1C	75	3C	25	75	B3	82	35	D0	90	86	86	63
42	8B	4D	6E	44	91	41	44	4D	A7	91	6E	9	10	1C	75	3E	25	75	B3	82	35	D2	91	87	87	64
43	78	4E	65	45	7E	42	45	4E	8E	7E	65	C	17	25	55	2C	1C	55	89	65	36	AC	7E	77	77	5E
43	79	4E	66	45	7F	42	45	4E	8F	7F	66	C	17	23	55	2C	1D	55	89	65	36	AE	7F	77	77	5E
43	7A	4E	66	45	80	42	45	4E	90	80	66	C	16	23	55	2E	1D	55	89	65	36	B0	80	78	78	5E
43	7B	4E	67	45	81	42	45	4E	92	81	67	B	16	21	5B	2E	1F	5B	90	6A	36	B2	81	79	79	5F
43	7C	4E	67	45	82	42	45	4E	93	82	67	B	15	21	5B	30	1F	5B	90	6A	36	B4	82	7A	7A	5F
43	7D	4E	68	45	83	42	45	4E	94	83	68	B	15	20	5B	30	20	5B	91	6A	36	B6	83	7B	7B	5F
43	7E	4E	68	45	84	42	45	4E	96	84	68	B	15	20	60	32	20	60	98	6F	36	B8	84	7C	7C	60
43	7F	4E	69	45	85	42	45	4E	97	85	69	B	15	1F	60	32	21	60	98	6F	36	BA	85	7D	7D	60
43	80	4E	69	45	86	42	45	4E	98	86	69	B	14	1F	60	34	21	60	98	70	36	BC	86	7D	7D	60
43	81	4E	6A	45	87	42	45	4E	9A	87	6A	A	14	1E	65	34	23	65	9F	74	36	BE	87	7E	7E	61
43	82	4E	6A	45	88	42	45	4E	9B	88	6A	A	13	1E	65	35	23	65	9F	74	36	C0	88	7F	7F	61
43	83	4E	6B	45	89	42	45	4E	9C	89	6B	A	13	1C	65	35	24	65	9F	75	36	C2	89	80	80	61
43	84	4E	6B	45	8A	42	45	4E	9E	8A	6B	A	13	1C	6B	37	24	6B	A6	79	36	C4	8A	81	81	61
43	85	4E	6C	45	8B	42	45	4E	9F	8B	6C	A	13	1B	6B	37	25	6B	A6	79	36	C6	8B	82	82	62
43	86	4E	6C	45	8C	42	45	4E	A0	8C	6C	A	12	1B	6B	39	25	6B	A7	7A	36	C8	8C	82	82	62
43	87	4E	6C	45	8D	42	45	4E	A2	8D	6C	9	11	1B	70	3B	25	70	AE	7E	36	CA	8D	83	83	62
43	88	4E	6D	45	8E	42	45	4E	A3	8E	6D	9	11	1A	70	3B	27	70	AE	7F	36	CC	8E	84	84	63
43	89	4E	6D	45	8F	42	45	4E	A4	8F	6D	9	11	1A	70	3C	27	70	AE	7F	36	CE	8F	85	85	63
43	8A	4E	6E	45	90	42	45	4E	A6	90	6E	9	11	1A	75	3C	28	75	B5	83	36	D0	90	86	86	63
43	8B	4E	6E	45	91	42	45	4E	A7	91	6E	9	10	1A	75	3E	28	76	B5	84	36	D2	91	87	87	64
44	78	4E	65	46	7E	44	46	4E	8E	7E	65	8	14	25	80	32	1C	80	C0	8A	38	AC	7E	77	77	5E
44	79	4E	66	46	7F	44	46	4E	8F	7F	66	8	14	23	80	32	1D	80	C0	8A	38	AE	7F	77	77	5E
44	7A	4E	66	46	80	44	46	4E	90	80	66	8	14	23	80	34	1D	80	C0	8A	38	B0	80	78	78	5E
44	7B	4E	67	46	81	44	46	4E	92	81	67	8	14	21	88	34	1F	88	CA	91	38	B2	81	79	79	5F
44	7C	4E	67	46	82	44	46	4E	93	82	67	8	13	21	88	36	1F	88	CB	91	38	B4	82	7A	7A	5F
44	7D	4E	68	46	83	44	46	4E	94	83	68	8	13	20	88	36	20	88	CB	91	38	B6	83	7B	7B	5F
44	7E	4E	68	46	84	44	46	4E	96	84	68	7	12	20	90	38	20	90	D5	98	38	B8	84	7C	7C	60
44	7F	4E	69	46	85	44	46	4E	97	85	69	7	12	1F	90	38	21	90	D5	99	38	BA	85	7D	7D	60
44	80	4E	69	46	86	44	46	4E	98	86	69	7	12	1F	90	3A	21	90	D6	99	38	BC	86	7D	7D	60
44	81	4E	6A	46	87	44	46	4E	9A	87	6A	7	12	1E	98	3A	23	98	E0	A0	38	BE	87	7E	7E	61
44	82	4E	6A	46	88	44	46	4E	9B	88	6A	7	11	1E	98	3C	23	98	E0	A0	38	C0	88	7F	7F	61
44	83	4E	6B	46	89	44	46	4E	9C	89	6B	7	11	1C	98	3C	24	98	E0	A0	38	C2	89	80	80	61
44	84	4E	6B	46	8A	44	46	4E	9E	8A	6B	6	11	1C	A0	3E	24	A0	EB	A7	38	C4	8A	81	81	61
44	85	4E	6C	46	8B	44	46	4E	9F	8B	6C	6	11	1B	A0	3E	25	A0	EB	A7	38	C6	8B	82	82	62
44	86	4E	6C	46	8C	44	46	4E	A0	8C	6C	6	10	1B	A0	40	25	A0	EB	A8	38	C8	8C	82	82	62
44	87	4E	6C	46	8D	44	46	4E	A2	8D	6C	6	10	1B	A8	42	25	A8	F5	AE	38	CA	8D	83	83	62
44	88	4E	6D	46	8E	44	46	4E	A3	8E	6D	6	10	1A	A8	42	27	A8	F6	AF	38	CC	8E	84	84	63
44	89	4E	6D	46	8F	44	46	4E	A4	8F	6D	6	F	1A	A8	44	27	A8	F6	AF	38	CE	8F	85	85	63

9-3-23. Outdoor White Balance Check

Object	White pattern standard picture frame
Filter	Color temperature compensation filter C14 (C12+C2)
Measurement point	VIDEO OUT terminal of the video block
Measuring instrument	Vectorscope
Specified value	Refer to Fig 9-34.

[Check Method]

1) Press the White Balance button to select the outdoor white balance mode. (A mark "☼" appears on the EVF screen or monitor screen (when the data screen is turned on)).
2) Check that the center of the white bright point is within the circumference shown in Fig. 9-33.

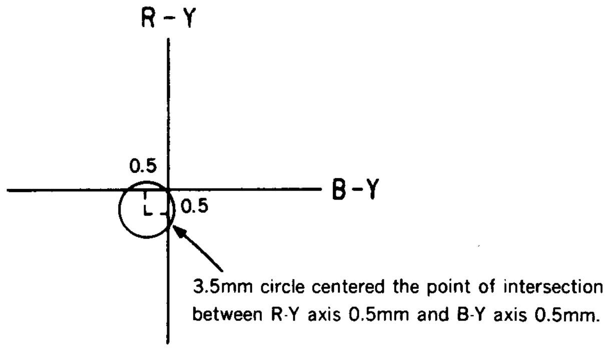

R - Y
0.5
B - Y
0.5
3.5mm circle centered the point of intersection between R-Y axis 0.5mm and B-Y axis 0.5mm.

Fig. 9-34.

9-3-24. Focus Motor Speed Adjustment (AF-85P Board)

Object	Optional
Measurement point	CN801
Measuring instrument	AF microcomputer data reader jig
Adjustment page	F
Adjustment address	5D (MAN F SPEED) 4A (ADJ PWM) 2B (M SPEED-B) 2C (M SPEED-C) 2D (M SPEED-D) 2A (M SPEED-A) 2E (M SPEED-E) 5C (MAN PWM SPEED)

[Adjustment Method]

1) Set the auto mode with the FOCUS button.
2) Select the adjustment page F with the adjustment remote control.
3) Select the adjustment address EB with the adjustment remote control and set the adjustment data to F5.
4) Balance the adjustment data at the adjustment address 5D so that the data indicated by the AF microcomputer data reader jig is changed from 0D to 0E after two seconds have elapsed.
5) Balance the adjustment data at the adjustment address 4A so that the data indicated by the AF microcomputer data reader jig is between 4B and 4F. (This adjustment data is assumed as LSP.)
6) Convert LSP into decimal data and assume it as LSP'.
7) Perform the following calculations in decimal form. Round down the results and convert them into hexadecimal data. Then input the data into the adjustment data at the respective adjustment addresses.

   adjustment address 2B : $\mathrm{LSP'}+\frac{255-\mathrm{LSP'}}{0.81}\times 0.05$

   adjustment address 2C : $\mathrm{LSP'}+\frac{255-\mathrm{LSP'}}{0.81}\times 0.13$

   adjustment address 2D : $\mathrm{LSP'}+\frac{255-\mathrm{LSP'}}{0.81}\times 0.31$
8) Input the adjustment data as follows :

   adjustment address 2A : LSP (the data of adjustment address 4A)

   adjustment address 2E : FF

   adjustment address 5C : the data of adjustment address 2D
9) Select the adjustment address EB with the adjustment remote control and set the adjustment data 00.
10) Change the adjustment address in order to store the adjustment data.

9-3-25. AF Adjustment

[Preparation]

1) Set the distance from the pattern box to the lens reference mark (Φ) to 1.5m. Then, place the zoom lever in the color bar chart standard picture frame position.

(1)AF Data Input (AF-85P Board)

Object	Siemens star chart standard picture frame, All black (Cover with a black cap), White pattern standard picture frame.
Filter	ND filter : 1.5 (0.1+0.4+1.0)
Measurement point	CN801
Measuring instrument	AF microcomputer data reader jig
Adjustment page	F
Adjustment address	27 (AGC HD) 26 (AGC MD) 30 (PA SET) 28 (LD-B) 29 (HD-B) 46 (AGC CONT W) 45 (AGC CONT B)

[Adjustment Method]

1) Place the system in the siemens star chart standard picture frame state.
2) Set the manual mode with the FOCUS button.
3) Attach the ND filter 1.5 (0.1+0.4+1.0) to the front of the lens.
4) Set the focus ring to the 1.2m and set the auto mode with the FOCUS button.
5) After 2.0 seconds, confirm that the picture of siemens star is taken clearly. Set the manual mode with the FOCUS button.
6) Detach the ND filter.
7) Select the adjustment page F with the adjustment remote control.
8) Select the adjustment address EB with the adjustment remote control and set the adjustment data to EF.
9) Change the adjustment address in order to store the adjustment data.
10) Wait until the data indicated by the AF microcomputer data reader jig data is stable (for about 1 second). Change the adjustment data at the adjustment address 27, then balance so that the data indicated by the AF microcomputer data reader jig is between B5 and BD.
11) Select the adjustment address EB with the adjustment remote control and set the adjustment data to ED.
12) Change the adjustment address in order to store the adjustment data.
13) Change the adjustment data at the adjustment address 26. Balance so that the data indicated by the AF microcomputer data reader jig is between E0 and ED.
14) Input the current readout of the AF microcomputer data reader jig into the adjustment data at the adjustment address 30.
15) Cover the lens with black cap.
16) Select the adjustment address EB with the adjustment remote control and set the adjustment data to F1.
17) Change the adjustment address in order to store the adjustment data.
18) If the readout of the AF microcomputer data reader jig is 19 or more, input it into the adjustment data at the adjustment address 28.

    If it is less than 18, input 19.
19) Select the adjustment address EB with the adjustment remote control and set the adjustment data to EF.
20) Change the adjustment address in order to store the adjustment data.
21) If the readout of the AF microcomputer data reader jig is 08 or more, input it into the adjustment data at the adjustment address 29.

    If it is 07 or less, input 08.
22) Select the adjustment address EB with adjustment remote control and set the adjustment data to 0B.
23) Change the adjustment address in order to store the adjustment data.
24) Input the current readout of the AF microcomputer data reader jig into the adjustment data at the adjustment address 46.
25) Detach the black cap and set the white pattern standard picture frame.
26) Input the current readout of the AF microcomputer data reader jig into the adjustment data at the adjustment address 45.
27) Select the adjustment address EB with adjustment remote control and set the adjustment data to 00.
28) Change the adjustment address in order to store the adjustment data.

(2)AF Evalut

Object
Filter
Measureme point
Measuring instrument
Adjustment page

[Checking

1) Set the
2) Attach t lens.
3) Set the f the FOC
4) After 2. star is FOCUS
5) Select th control.
6) Select t remote
7) Change adjustm
8) Confirm reader j
9) Select t

ent remote
adjustment
F5.
nt address
ocomputer
after two
nt address
ocomputer
adjustment
as LSP'.
mal form.
into hex-
adjustment
.05
.13
.31
adjustment
nt address
adjustment
0.
store the

9-3-25. AF Adjustment

[Preparation]

1) Set the distance from the pattern box to the lens reference mark (Φ) to 1.5m. Then, place the zoom lever in the color bar chart standard picture frame position.

(1)AF Data Input (AF-85P Board)

Object	Siemens star chart standard picture frame, All black (Cover with a black cap), White pattern standard picture frame.
Filter	ND filter : 1.5 (0.1+0.4+1.0)
Measurement point	CN801
Measuring instrument	AF microcomputer data reader jig
Adjustment page	F
Adjustment address	27 (AGC HD) 26 (AGC MD) 30 (PA SET) 28 (LD-B) 29 (HD-B) 46 (AGC CONT W) 45 (AGC CONT B)

[Adjustment Method]

1) Place the system in the siemens star chart standard picture frame state.
2) Set the manual mode with the FOCUS button.
3) Attach the ND filter 1.5 (0.1+0.4+1.0) to the front of the lens.
4) Set the focus ring to the 1.2m and set the auto mode with the FOCUS button.
5) After 2.0 seconds, confirm that the picture of siemens star is taken clearly. Set the manual mode with the FOCUS button.
6) Detach the ND filter.
7) Select the adjustment page F with the adjustment remote control.
8) Select the adjustment address EB with the adjustment remote control and set the adjustment data to EF.
9) Change the adjustment address in order to store the adjustment data.
10) Wait until the data indicated by the AF microcomputer data reader jig data is stable (for about 1 second). Change the adjustment data at the adjustment address 27, then balance so that the data indicated by the AF microcomputer data reader jig is between B5 and BD.
11) Select the adjustment address EB with the adjustment remote control and set the adjustment data to ED.
12) Change the adjustment address in order to store the adjustment data.
13) Change the adjustment data at the adjustment address 26. Balance so that the data indicated by the AF microcomputer data reader jig is between E0 and ED.
14) Input the current readout of the AF microcomputer data reader jig into the adjustment data at the adjustment address 30.
15) Cover the lens with black cap.
16) Select the adjustment address EB with the adjustment remote control and set the adjustment data to F1.
17) Change the adjustment address in order to store the adjustment data.
18) If the readout of the AF microcomputer data reader jig is 19 or more, input it into the adjustment data at the adjustment address 28.
    If it is less than 18, input 19.
19) Select the adjustment address EB with the adjustment remote control and set the adjustment data to EF.
20) Change the adjustment address in order to store the adjustment data.
21) If the readout of the AF microcomputer data reader jig is 08 or more, input it into the adjustment data at the adjustment address 29.
    If it is 07 or less, input 08.
22) Select the adjustment address EB with adjustment remote control and set the adjustment data to 0B.
23) Change the adjustment address in order to store the adjustment data.
24) Input the current readout of the AF microcomputer data reader jig into the adjustment data at the adjustment address 46.
25) Detach the black cap and set the white pattern standard picture frame.
26) Input the current readout of the AF microcomputer data reader jig into the adjustment data at the adjustment address 45.
27) Select the adjustment address EB with adjustment remote control and set the adjustment data to 00.
28) Change the adjustment address in order to store the adjustment data.

(2)AF Evalution Value Check (AF-85P Board)

Object	Siemens star chart standard picture frame
Filter	ND filter : 1.5 (0.1+0.4+1.0)
Measurement point	CN801
Measuring instrument	AF microcomputer data reader jig
Adjustment page	F

[Checking Method]

1) Set the manual mode with the FOCUS button.
2) Attach the ND filter 1.5 (0.1+0.4+1.0) to the front of the lens.
3) Set the focus ring to the 1.2m and set the auto mode with the FOCUS button.
4) After 2.0 seconds, confirm that the picture of siemens star is taken clearly. Set the manual mode with the FOCUS mode.
5) Select the adjustment page F with the adjustment remote control.
6) Select the adjustment address EB with the adjustment remote control and set the adjustment data to EF.
7) Change the adjustment address in order to store the adjustment data.
8) Confirm that the data of the AF microcomputer data reader jig is between A3 and BD.
9) Select the adjustment address EB with the adjustment remote control and set the adjustment data to ED.
10) Change the adjustment address in order to store the adjustment data.
11) Confirm that the data of the AF microcomputer data reader jig is between D5 and ED.
12) Select the adjustment address EB with the adjustment remote control and set the adjustment data to 00.
13) Change the adjustment address in order to store the adjustment data.

(3)AF Distance Measuring Check (AF-85P Board)

Object	Siemens star chart
Filter	ND filter : 1.5 (0.1+0.4+1.0)

[Checking Methed]

1) Attach the ND filter 1.5 (0.1+0.4+1.0) to the front of the lens.
2) Set the zoom lever to the TELE end and set the manual mode with the FOCUS button.
3) Set the focus ring to the 1.2m and set the auto mode with the FOCUS button.
4) After 2.0 seconds, confirm that the picture of siemens star is taken clear. Set the manual mode with the FOCUS button.
5) Set the focus ring to the ∞ and set the auto mode with the FOCUS button.
6) After 3.0 seconds, confirm that the picture of siemens star is taken clear. Set the manual mode with the FOCUS button.

SECTION 10
ELECTRICAL ADJUSTMENTS (VIDEO SYSTEM)

See the adjusting part location diagram from on page 230 for the adjustment.

10-1. PREPARATION FOR ADJUSTMENT

10-1-1. Equipment Required

The following measuring instruments are needed in adjusting the VTR section.

1) Monitor TV
2) Oscilloscope Dual-trace, Bandwidth more than 10MHz with delay mode (Use a probe of 10 : 1, unless otherwise specified.)
3) Frequency counter
4) Pattern generator (with video output terminal)
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuator
10) Stabilized power supply
11) Alignment tape
    For tracking adjustment (WR5-1CP)*1
      Part number : 8-967-995-07
    For video frequency characteristics adjustment (WR5-6C)*2
      Part number : 8-967-995-17
    For operation check (WR5-4CL)*3
      Part number : 8-967-995-56
    For operation check (WR5-5CSP)*4
      Part number : 8-967-995-47

Note : ∗ 1 : WR5-1C(8-967-995-06)
∗ 2 : WR5-2C (8-967-995-16)
∗ 3 : WR5-3CL (8-967-995-36)
∗ 4 : WR5-3CSP(8-967-995-27)
WR5-4CSP (8-967-995-46)
You can use these tape.

12) Adjustment remote control (RM-95 Partially remodeled product) (J-6082-053-B)
13) Extension cable (20P) J-6082-063-B (Between VA-67P board CN703 and CT-38P board CN705.)

10-1-2. Precaution for Adjustment

The video section can be also adjusted without the camera section after the 10-4-1. Remove the camera section by disconnecting the following 5 connectors.

1. VC-94P board CN305
2. DC-DC converter 2P connecter (connect the FU-100P board W991)
3. VC-94P board CN307
4. VC-94P board CN306
5. SS-136P board CN503

Remove the EVF section by disconnecting the following connector.

1. SW-174P board CN931

MIC board (MC-76P board) is not necessary for video section adjustment. Remove the MIC board by disconnecting the following connector.

1. VA-67P board CN401

Setting the switch

1. VA-67P board S201······OUT side (Australian Model)

10-1-3. Equipment Connection

Unless otherwise specified, adjustment is made in the VTR mode by connecting the measuring instruments as shown in the figure below.

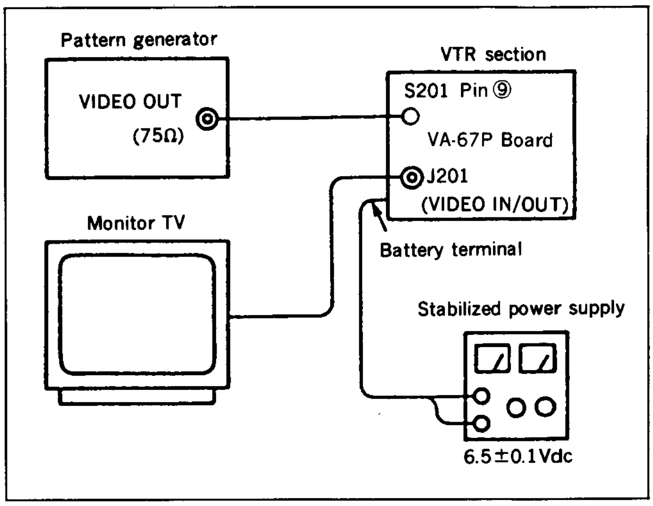


Fig. 10-1.

10-1-4. Setting up for Adjustment

Video signals output from a pattern generator are used as adjustment signals when adjusting the video section, and these video output signals should be within the required standard. Connect an oscilloscope to J201 (VIDEO IN/OUT) on theVA-67P board. Confirm that the amplitudes of video signal SYNC signals, of picture portions, and of burst signals are flat at approximately 0.3, 0.7, and 0.3V respectively, and that the level ratio of the burst signals and "red" signals are 0.30 : 0.66. Fig. 10-2 shows video signals (color burst) used in the video section adjustments.

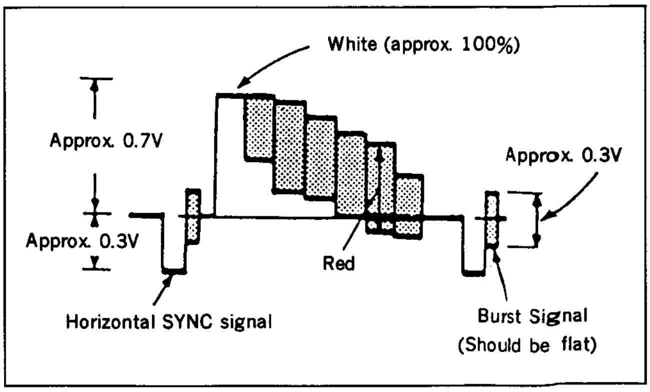
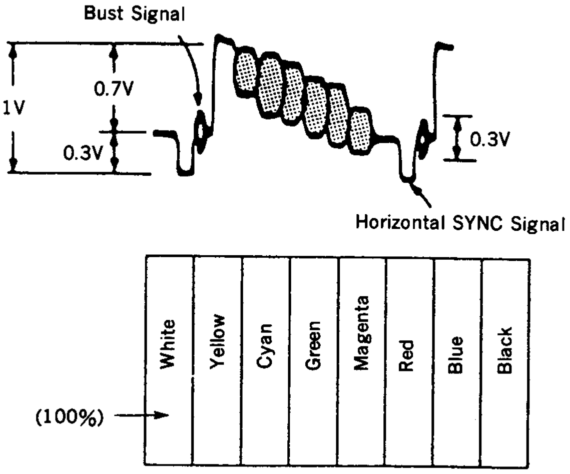


Fig. 10-2.

10-1-5. Alignment Tape

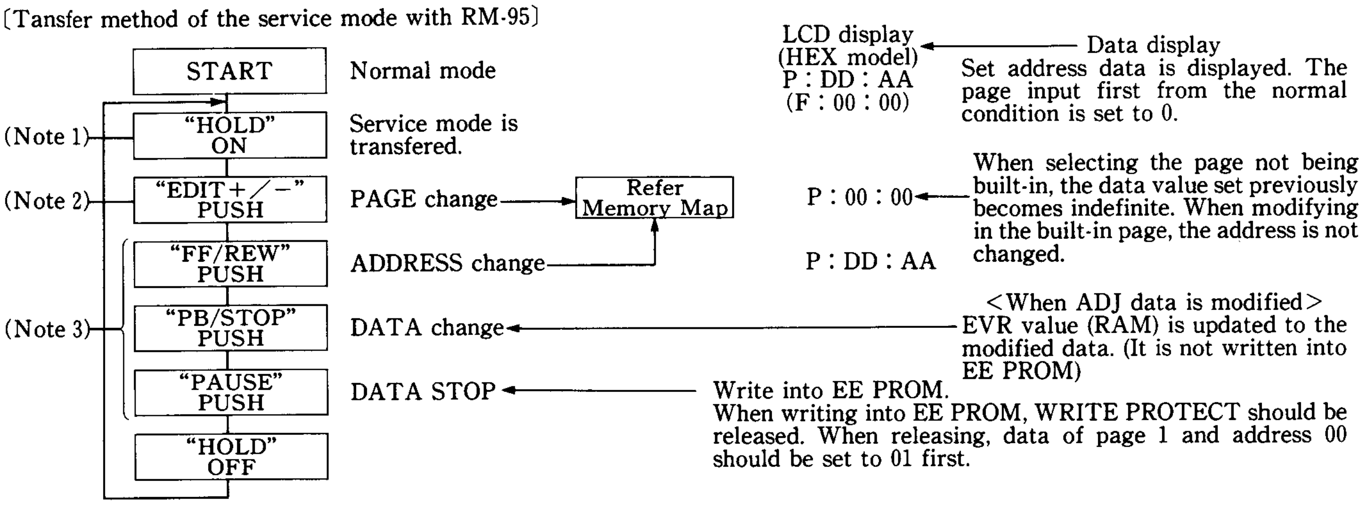
Tape	Description	Use for
Tracking (WR5-1CP)	1. Recording area PCM to Video 2. Recording content : CH2 : 1MHz linearity adjustment signal Switching position Adjustment marker (CH1 : 9MHz)	Drum linearity adjustment
Video frequency response (WR5-6C)	1. Recording area Video 2. Recording content RF sweep 0 to 10MHz 3. Marker 1, 3.58, 5.5 and 7MHz	Frequency response adjustment
Operation cheking SP mode (WR5-5CSP) LP mode (WR5-4CL) Note : PCM area is not included in WR5-4CL	1. Recording area Video 2. Recording content ■ Video area ● Video signals Color bar : 4min. Monoscope : 4min. 〔Color bars〕  Bust Signal 1V 0.7V 0.3V 0.3V Horizontal SYNC Signal White Yellow Cyan Green Magenta Red Blue Black (100%) ● Audio signal (AFM) 400Hz, 60% modulation ■ PCM area ● Audio signal (PCM) 1kHz, 4 min. Color bar 20Hz, 20 sec. 400Hz, 20 sec. } Monoscope 14kHz. 20 sec.	Operation checking

10-1-6. Input/Output Level and impedance

Video input/output Phono jack
1Vp-p, 75Ω unbalance, sync negative
Audio input/output Phono jack
Input : −7.5dBs, input impedance more tham 47kilohms
Output : −7.5dBs, at output impedance less than 1kilohms
AEP/UK MODEL → Output only
Australian MODEL → Input/output

10-1-7. Service Mode

〔Tansfer method of the service mode with RM-95〕


START
Normal mode
(Note 1)
"HOLD" ON
Service mode is transfered.
(Note 2)
"EDIT+/−" PUSH
PAGE change
Refer Memory Map
"FF/REW" PUSH
ADDRESS change
(Note 3)
"PB/STOP" PUSH
DATA change
"PAUSE" PUSH
DATA STOP
"HOLD" OFF
LCD display (HEX model) P : DD : AA (F : 00 : 00)
P : 00 : 00
P : DD : AA

Data display
Set address data is displayed. The page input first from the normal condition is set to 0.

When selecting the page not being built-in, the data value set previously becomes indefinite. When modifying in the built-in page, the address is not changed.

<When ADJ data is modified>
EVR value (RAM) is updated to the modified data. (It is not written into EE PROM)

Write into EE PROM.
When writing into EE PROM, WRITE PROTECT should be released. When releasing, data of page 1 and address 00 should be set to 01 first.

Command name	Command function	Function Button with RM-95
Page Up	Page+ 1	Edit Search+
Page Down	Page− 1	Edit Search−
Direct Page Set	Set to direct page	Event Clear
Address Up	Address+1	Fast Forward
Address Down	Address−1	Rewind
Data Up	Data+ 1	Play Back
Data Down	Data−1	Stop
Store	Write data into EEPROM. RAM	Pause

[ADJUST, TEST MODE description]

MODE		PAGE/DATA/ADDRESS	Contents
ADJUST	Switching Position Adjustment	D : -- : 04 (high) D : -- : 05 (low)	Switching position adjustment See to page 214 for details
	Battery Down Adjustment	D : -- : 06 (Sensor value) D : -- : 07 (Set value)	Use for battery down adjustment See to page 213 for details
TEST MODE	Pass Adjustment Truck Shift	1 : 30 : 4D	Truck shift for pass adjustment Set to the data described left and set the playback mode.
	Emergency Inhibit	1 : 10 : 4D	Detection of emergency is inhibited. Even if battery is ended, power is not turned off. SP/LP is not automatically distinguished. Emergency detection except for TAPE/TOP•END is inhibited.
	Emergency Code	D : -- : 20~22 D : -- : 24~26	First emergency is displayed. Last emergency is displayed. (See to ＊ 1)
	RECOG SW Check	1 : -- : 3D 1 : -- : 3E	Mode switch position is displayed. RECOG SW ON OFF is displayed. (See to ＊ 2)
	Function SW Check	1 : -- : E8~ED	Pressing KEY is checked. (See to ＊ 3)
	Motor single check	3 : 10 : DD (Loading Ⓜ) 3 : 11 : DD (Drum Ⓜ) 3 : 12 : DD (Capstan Ⓜ)	Rotating in right direction, inverting, stopping of each motor can be separately controlled. • Loading Motor • Drum Motor (See to ＊ 4) • Capstan Motor

	MODE	PAGE/DATA/ADDRESS	Contents
TEST MODE	Sensor check	3 : 21 : DD	The following sensor is input by performing A/D selecting, and the A/D selecting value can be confirmed. TOP sensor, End sensor, S REEL FG, T REEL FG, Thermistor for SWP correction DEW sensor. (See to ＊ 5)
	Reception contents check of wireless remote control	1 : -- : 1E and 1D	The received code contents of the remote control code can be confirmed. (See to ＊ 6)

＊1 **Emergency Code Check**
With the SENSER LANC

(The emergency code has the first emergency and last emergency. The last emergency side is changed when emergency is generated ; the first emergency side records the only code generated first.)

			First	Last	
PAGE	D	ADDRESS	20, 21	24, 25	← Emergency code
PAGE	D	ADDRESS	22	26	← Mode when emergency is generated

Displayed → Be sure to rewrite the address from 20 to 26 to data 00 after the operation.

(1) Emergency code list

Code		Emergency contents
20H,24H	21H,25H	
00	00	Normal mode
01	00	Loading Motor emergency.
02	00	Unloading, Reel emergency.
04	00	Steady, Reel emergency.
08	00	Capstan emergency.
00	01	Drum steady, FG emergency.
00	02	Drum steady, PG emergency.
00	21	Drum steady, FG emergency.
00	22	Drum steady, PG emergency.
00	41	Loading, Drum FG emergency.
00	42	Loading, Drum PG emergency.
00	81	Unloading, Drum FG emergency.
00	82	Unloading, Drum PG emergency.
——	——	Dram steady Phase emergency.

- In order to delete the contents of [the first and the last emergency], write with SENSER LANC as follows.

Page 1	Address 00	Data 01

After that, write data 00 into each address.
After writing, return to

Page 1	Address 00	Data 00

(2) Mode code

Mode	Code	Mode	Code
STOP	20	EDIT S CUE	5A
FF	30	EDIT S REV	5B
REW	38	EDIT S STIL	5F
PB	60	+×1	62
CUE	64	−×1	63
REV	65	−STILL	79
STILL	70	+FRAME	76
REC	40	−FRAME	77
REC. P	41	+×2	66
SHUTTLE EDIT (+)	5A	−×2	62
SHUTTLE EDIT (−)	5B	LOADING	21
CAM STBY	41	UNLOADING	13
CAM REC	40	EJECTED	10
REC REV+	58	+SLOW	72
REC REV−	59	−SLOW	73

* 2 RECOG SW Check

With the SENSER LANC

Page	Address	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
1	3D	MP-HG		ME/MP	REC PROOF	V MUTE	A MUTE	JOG	VA PB MODE

“1”=REC inhibit
“1”=ME/ 0 : MP
“1”=MPHG/ 0 : Normal

Page	Address	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
1	3E	DEW			RP PB MODE	CASSETTE COMPARTMENT LOCK	MODE SW2	MODE SW1	MODE SW0

See to the following list

When locking the Cassette Compartment, “1”

- MODE SW CODE LIST

	Address 3E contents			Real port condition			Remark
Position	M SW2	M SW1	M SW0	M SW2	M SW1	M SW0	
EJECT	0	0	0	L	H	H	Cassette Compartment eject position
IA	0	0	1	H	H	H	Interval A
UNLOAD	0	1	0	L	L	H	Normal EJECT unloaded
IB	0	1	1	H	L	H	Interval B
STOP	1	0	0	H	L	L	STOP mode position
IC	1	0	1	H	H	L	Interval C
FWD	1	1	0	L	H	L	Pinch pressure welded
ID	1	1	1	L	L	L	Interval D
SHAKING HEAD POSITION	0	0	0	L	H	L	Shaking head ptsition

☆ This mode releasing is turn off the SENSER LANC.

*** 3 Switch check** (See to the previous page for reading code.)

With the SENSER LANC :

Page 1	Address E8 to ED	Data Refer to table

Address	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	K IN 7	K IN 6	K IN 5	K IN 4	K IN 3	K IN 2	K IN 1	K IN 0
E8 K OUT 0	——	REMOTE ON/OFF	T2	T1	——	MACRO AF	SHUTTER	AUTO LOCK
E9 K OUT 1	——	STEREO	MEMORY	COLOR	DATA SCREEN	ONE PUSH AF	AF ON/OFF	PROGRAM AE
EA K OUT 2	——	SUB	EDIT (+)	EDIT (−)	FRAME	AWB	BACK LIGHT	——
EB K OUT 3	——	STANDBY	PAUSE	RESET	REC	FADER	——	——
EC K OUT 4	——	START/ STOP	PB	ZERO MEMORY	TIME	DATE	AGE	VTR
ED K OUT 5	——	Edit/ OFF	REW	STOP	EJECT	FF	SLOW	CAM

☆ This mode releasing is turn off the SENSER LANC.

- Check the initial set value in shipping after the service, because EE PROM is monuted to VTR in this unit.

D Page Initial set value in shipping (for this unit)

Address	Contents					Set value
0 0	Aging mode					00
0 1	Each flag area (destination/model /HEAD width1×2MUTE)					C9
0 2	VTR REC key acceptance authorization					AEP, UK : 02 AUS : 03
0 3						--
0 4	Switching position (low)					Adjustment value
0 5	Switching position (high)					Adjustment value
0 6	Battery A/D modification value					Adjustment value
0 7	Battery end set area					Adjustment value
1 0	SR data storage area	EDIT OFF	MP	HI8	LP	--
1 1	SR data storage area	EDIT OFF	MP	HI8	SP	--
1 2	SR data storage area	EDIT OFF	MP	NOR	LP	16
1 3	SR data storage area	EDIT OFF	MP	NOR	SP	24
1 4	SR data storage area	EDIT OFF	ME	HI8	LP	--
1 5	SR data storage area	EDIT OFF	ME	HI8	SP	--
1 6	SR data storage area	EDIT OFF	ME	NOR	LP	16
1 7	SR data storage area	EDIT OFF	ME	NOR	SP	24
1 8	Titler vertical position adjustment area JOG mode					04
1 9	Titler vertical position adjustment area NOR mode					06
1 A	Titler horizontal position adjustment area playback mode					33
1 B	Titler horizontal position adjustment area EE mode					33
1 C	When SR data storage area EDIT is ON : Hi8 mode					--
1 D	When SR data storage area EDIT is ON : Normal mode					24
1 E						--
1 F						--
2 0	First generated emergency code (low) (First emergecy)					00
2 1	First generated emergency code (high) (First emergency)					00
2 2	Mode code when emergency is generated first					00
2 3						00
2 4	Last generated emergency code (low) (Last emergency)					00
2 5	Last generated emergency code (high) (Last emergency)					00
2 6	Mode code when emergency is generated last.					00

* 4 In order to operate the motor singly

[Operation]

Write the following number with the SENSER LANC into | Page 3 | Address DD. |

Then the check of each motor is performed.

10H → Loading motor
11H → Drum motor
12H → Capstan motor

After the set of the above data, operation is performed by pressing the following keys. (When the operation is performed with RM-95, set the HOLD switch to left and release the SENSER LANC.)

FF key → Rotating in right direction
REW key → Inverting
STOP key → Stop

Note) In this mode, operation is only performed on the normally loaded condition.

Note) The motor rotating speed is the normal rotating number. (Drum 30Hz, Capstan SP mode speed, Loading normal speed).

In order to release this mode, turn off the SENSER LANC and turn off the power.

* 5 In order to read the A/D selecting value (Sensor check)

[Operation]

With the SENSER LANC:

Write | Page 3 | Address DD | Data 21 |

The following address (PAGE 3) of the A/D selecting value of each A/D port is displayed.

Address	Selecting value Contents
65	TOP sensor (light ON)
67	TOP sensor (light OFF)
64	END sensor (light ON)
66	END sensor (light OFF)
62	S-REEL FG
63	T-REEL FG
60	Thermistor (for SWP correction)
5F	DEW sensor

The voltage of A/D selecting 1 step: $4.9 \div 256 \fallingdotseq 19\text{mV}$

* 6 In order to check the reception contents of the wireless remote control

With SENSER LANC, the received remote control code is displayed to | Page 1 | Address 1E. |

The remote control code is only displayed while the code which the LANC code is shifted to right for 1 bit is pressed, and FF is displayed when the code is released.

The received category code of the remote control is displayed to the upper 4 bit of | Page 1 | Address 1D. |

(The description of the remote control code is omitted in this chart.)

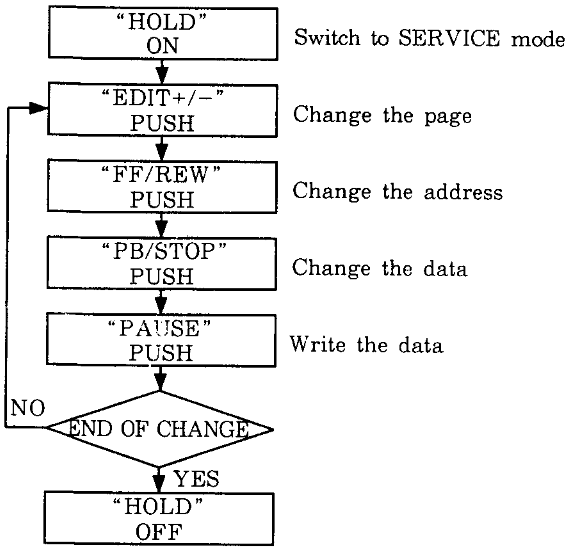
10-1-8. To Set the AEP, UK Model to REC Mode

1. Make the set CAMERA section connected.
2. Enter SERVICE mode with the adjustment remote control. (Refer to page 161 for details.)
3. Set the data at address: 00 on page: 1 to 01 ∗ 1.
4. Set the data at address: 02 on page: D to 03 ∗1.
5. Turn the power of the set off.
6. Turn the power of the set on.
7. Make shorting once for S510 land of VK-14P board.

After voltage measurement and adjustment, restore as follows:

1. Set the data at address: 00 on page: 1 to 01 ∗1.
2. Set the data at address: 02 on page: D to 02 ∗1.
3. Turn the power of the set off.

∗1 [To change the data]



10-2. POWER VOLTAGE CHECK (SS-136P BOARD)

Measuring instrument	Digital voltmeter
SS 4.9V check	
Measurement point	CN506 pin ①
Specified value	$4.90 \pm 0.15V_{DC}$
AUDIO 4.9V check	
Measurement point	CN506 pin ⑦
Specified value	$4.90 \pm 0.15V_{DC}$
EVF 4.9V check	
Measurement point	CN503 pin ①
Specified value	$4.90 \pm 0.15V_{DC}$
LM 5V check	
Measurement point	CN502 pin ⑮
Specified value	$4.85 \pm 0.15V_{DC}$

[Check Method]

1) Each power voltage should satisfy the specified values at normal temperature and humidity.

10-3. SYSTEM CONTROL SYSTEM ADJUSTMENT

10-3-1. Battery Down Adjustment

Mode	CAMERA REC
Signal	Unnecessary
Measurement point	Display on the adjustment remote control
Measuring instrument	Adjustment remote control
Adjustment page	D
Adjustment address	06
Specified value	(reference value) Note: Actually, exact data of $5.5V_{DC}$ of page D address 06 is written.

[Connection]

1) Make the set MIC board, EVF board, and CAMERA section connected.
2) Connect the adjustment remote control to the REMOTE terminal.
3) Connect the digital voltmeter so to measure the voltage of the stabilized power supply unit connected to the battery terminal.

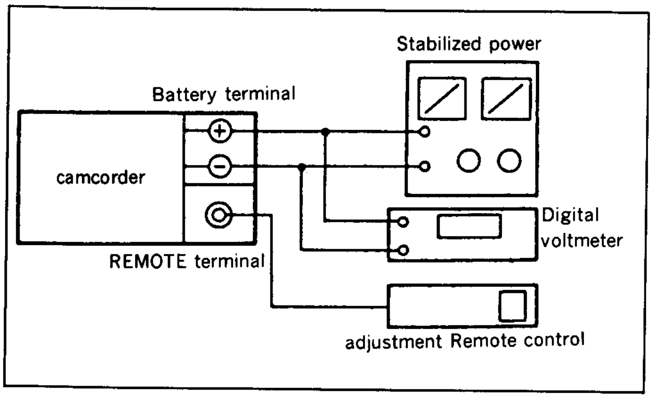
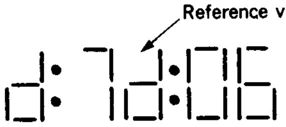


Fig. 10-3.

[Adjustment Method]

1) Turn on the POWER switch. (CAMERA mode)
2) Adjust the output of the stabilized power supply unit to be 5.58±0.01 V_{DC} (battery terminal voltage).
3) Turn on the CAMERA REC mode.
4) Set the HOLD switch of the remote control for adjustment to the HOLD side.
5) Press once the EDIT SEARCH (+) button of the adjustment commander select page 1, select data 01 of address 00, and release the protector.
6) Press four times the EDIT SEARCH (−)button of the remote control for adjusment. (Set the adjustment page to D.)
7) Be sure to set the adjustment address 06 with FF or REW button of the remote control for adjustment, and press the PAUSE button.



8) Turn off the POWER switch.

[Checking Method]

1) Turn on the power.
2) Adjust the output of the stabilized power supply to be 5.66±0.01V_{DC}.
3) Set the camera REC mode.
4) After five seconds,TALLY should flash at 0.8Hz. (Battery Pre End)
5) Adjust the output of the stabilized power supply to be 5.50±0.01V_{DC}.
6) Set the camera REC mode.
7) After five seconds, STOP mode should be set and TALLY should flash a 3.2Hz. (Battery END)

10-3-2. Clock Accuracy Adjustment (FU-100P Board)

Mode	E-E
Signal	Unnecessary
Measurement point	IC501 pin ⑥⑨
Measuring instrument	Ocsilloscope Frequency counter
Adjustment element	CT501
Specified value	512.000±0.001Hz

[Adjustment Method]

1) Adjust to 512.000±0.001Hz with CT501.

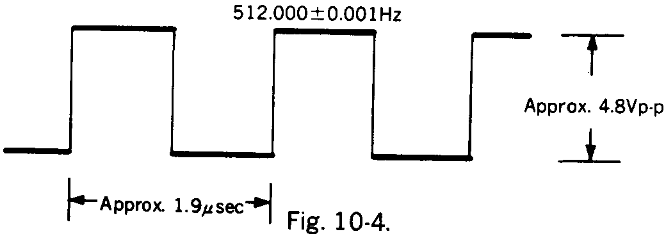


Fig. 10-4.

10-4. SERVO SYSTEM ADJUSTMENT

10-4-1. Switching Position Adjustment (SS-136P Board)

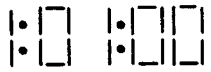
Mode	Playback
Signal	Alignment tape : Operation check (WR5-1CP)
Measurement point	CH1 : CN508 pin ④ (SWP) CH2 : CN508 pin ③ (PB RF)
Measuring instrument	Oscilloscope
Adjustment page	D
Adjustment address	05 04
Specified value	$t_1=0\pm5\mu$sec $t_2=0\pm5\mu$sec

[Connection]

1) Make the set CAMERA section connected.
2) Connect the adjustment remote control to the REMOTE terminal.

[Adjustment Method]

1) Set the HOLD switch of the adjustment remote control to the HOLD side. (ADJUST MODE is set.)
2) Select page 1 with the remote control for adjustment and select adjustment data 01 of adjustment address 00. (Protector is released.)



3) Press four times the EDIT SEARCH (—) button of the remote control for adjustment. (Adjustment page D is set.)
4) Select the adjustment address to 05 in order to change the adjustment data, and adjust to $t_1=0\pm5\mu$sec.

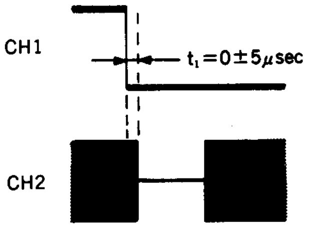


Fig. 10-5.

5) Press the PAUSE button in order to store the adjustment data.
6) Select the adjustment address 04 in order to change the adjustment data and adjust to $t_2=0\pm5\mu$sec.

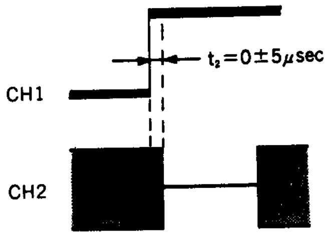


Fig. 10-6.

7) Press the PAUSE button in order to store the adjustment data.

10-4-2. Oscillation Frequency Adjustment (SS-136P Board)

Mode	REC
Signal	Unnecessary
Measurement point	Q903 collector
Measuring instrument	Oscilloscope Frequency counter
Adjustment element	RV901
Specified value	475±5kHz

[Adjustment Method]

1) Adjust to 475±5kHz with RV901.

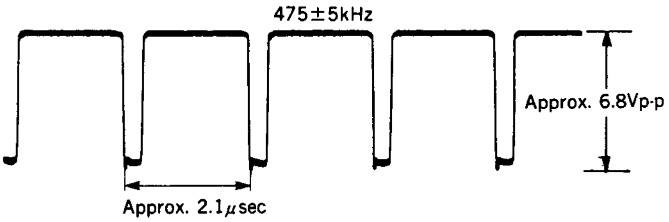


Fig. 10-7.

10-4-3. Output Voltage Adjustment (SS-136P Board)

Mode	REC
Signal	Unnecessary
Measurement point	CN507 pin ⑲
Measuring instrument	Digital voltmeter
Adjustment element	RV902
Specified value	$4.90\pm0.05V_{DC}$

[Adjustment Method]

1) Adjust to $4.90\pm0.05V_{DC}$ with RV902.

10-5. VIDEO ADJUSTMENT

The adjustment of the video system should in principle follow the adjustment procedure below. The color video input signal supplied from the pattern generator is used as the video input signal for video adjustment in the REC mode. Make sure that the SYNC signal and color burst signal are matched with the standard specified for set-up as shown in the Fig. 10-2 during adjustment.

[Adjustment Sequence]

1) Playback Frequency Characteristic Adjustment
2) X'tal Oscillator fo Check
3) REC E-E Level Adjustment
4) IR Adjustment
5) Chroma Comb Filter Adjustment
6) Emphasis Y Level Adjustment
7) Y FM Carrier Frequency Adjustment
8) Y FM Deviation Adjustment
9) REC Y FM Level Adjustment
10) Chroma Emphasis Adjustment
11) HUE Phase Deviation Adjustment
12) REC Chroma Level Adjustment
13) PB CCD Level Adjustment
14) PB Level Adjustment
15) Character Generator SG Frequency Adjustment
16) DDS Character Position Adjustment

10-5-1. Playback Frequency Characteristic Adjustment (SS-136P Board)

(1)

Mode	Playback
Signal	Alignment tape : Frequency characteristic adjustment (WR5-6C)
Measurement point	CH1 : CN508 pin ④ (D SWP) CH2 : CN508 pin ③ (PB RF)
Measuring instrument	Oscilloscope
Adjustment element	PB 1-CH : RP-77 board RV102 PB 2-CH : RP-77 board RV101
Specified value	3.58MHz level : 5.5MHz level=4 : 3±0.3

[Adjustment Method]

1) Adjust PB RF OUT of PB 1-CH and PB 2-CH with respective RV so as to get the specified value.

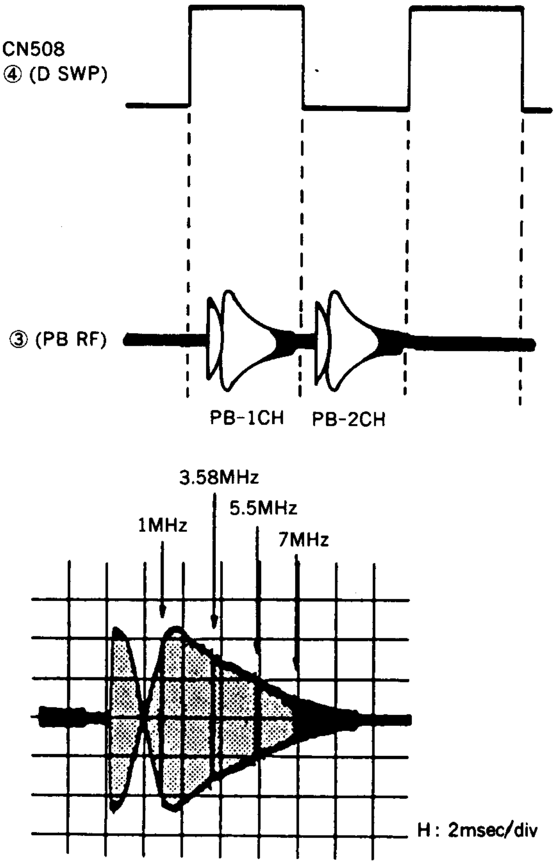


Fig. 10-8.

10-5-2. X'tal Oscillator fo Check (VA-67P Board)

Made	E-E
Signal	Color bar
Measurement point	IC203 pin ⑫
Measuring instrument	Oscilloscope Frequency counter
Specified value	4433619±70Hz

[Check Method]

1) Make sure that the oscillation frequency of IC203 pin ⑫ is 4433619±70Hz.

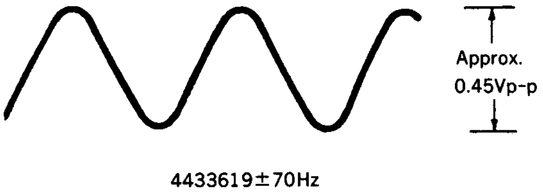

Approx.
0.45Vp-p
4433619±70Hz

Fig. 10-9.

10-5-3. REC E-E Level Adjustment (VA-67P Board)

Mode	REC or E-E
Signal	Color bar
Measurement point	J201 (VIDEO OUT terminal)
Measuring instrument	Oscilloscope
Adjustment element	RV205
Specified value	1.000±0.025Vp-p

[Adjustment Method]

1) Adjust to 1.000±0.025Vp-p with RV205.

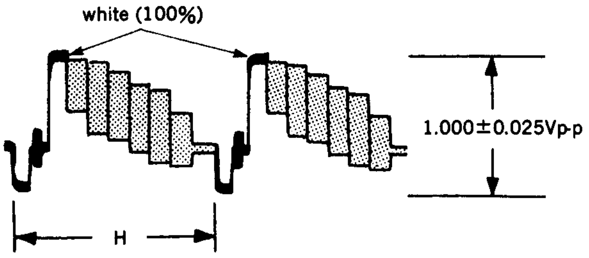

white (100%)
1.000±0.025Vp-p
H

Fig. 10-10.

10-5-4. IR Adjustment (VA-67P Board)

Mode	REC
Signal	Color bar
Measurement point	IC201 pin ⑦
Measuring instrument	Oscilloscope
Adjustment element	RV201
Specified value	Minimum red residual chroma component (80mVp-p or less)

[Connection]

1) Short TP003 and TP007.

[Adjustment Method]

1) Minimize the red residual chroma component with RV201.(80mVp-p or less)
2) After the adjustment, open TP003 and TP007.

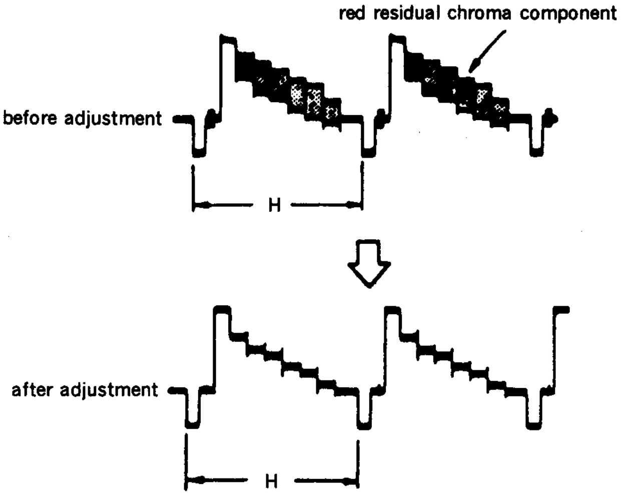

red residual chroma component
before adjustment
H
after adjustment
H

Fig. 10-11.

10-5-5. Chroma Comb Filter Adjustment (VA-67P Board)

Mode	REC
Signal	Color bar
Measurement point	IC201 pin ⑪
Measuring instrument	Oscilloscope
Adjustment element	RV204 RV211
Specified value	Minimum red residual chroma component (20mVp-p or less)

[Adjustment Method]

1) Adjust RV204 and RV211 alternately and minimize the red residual chroma component. (20mVp-p or less)

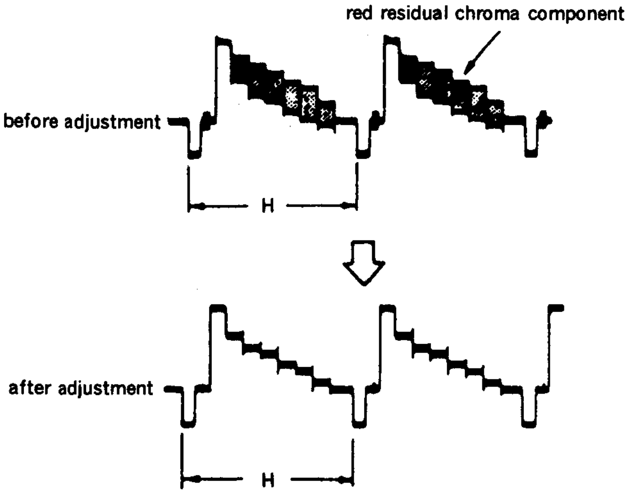


Fig. 10-12.

10-5-6. Emphasis Y Level Adjustment (VA-67P Board)

Mode	REC
Signal	Color bar
Measurement point	IC201 pin ③
Measuring instrument	Oscilloscope
Adjustment element	RV202
Specified value	500±25mVp-p

[Adjustment Method]

1) Adjust to 500±25mVp-p with RV202.

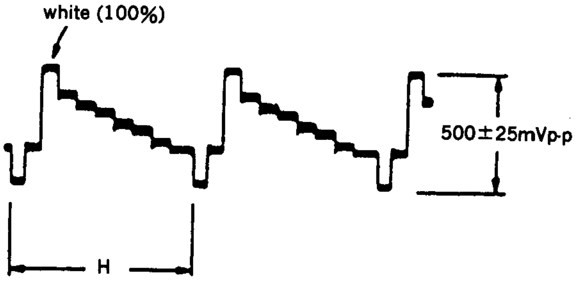


Fig. 10-13.

10-5-7. Y FM Carrier Frequency Adjustment (VA-67P Board)

Mode	REC
Signal	Non-signal
Measurement point	R158 side terminal of RV101 (REC Y)
Measuring instrument	Frequency counter
Adjustment element	RV207
Specified value	4.38±0.04MHz

[Adjustment Method]

1) Adjust to 4.38±0.04MHz with RV207.
2) Make this adjustment after completing 10-5-8. Y FM Deviation Adjustment.

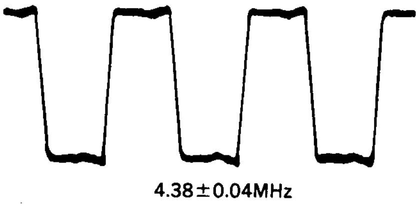


Fig. 10-14.

10-5-8. Y FM Deviation Adjustment (VA-67P Board)

Mode	REC and Playback
Signal	Color bar
Measurement point	J201 (VIDEO OUT terminal)
Measuring instrument	Oscilloscope
Adjustment element	RV206
Specified value	Playback level of 1.00±0.05Vp-p

Note 1: 10-5-7. Y FM Carrier Frequerncy adjustment must been completed.

Note 2: VIDEO OUT terminal (J201) must be terminated at 75Ω.

[Adjustment Method]

1) Record the color bar signal.
2) Playback the recorded signal.
3) Check the playback output level.
   Specified value: 1.00±0.05Vp-p
4) When the specified value is not, turn RV206 as follows and repeat the steps 1) through 3) above.

	RV206 Rotating Direction
When larger than specified value	Clockwise direction (↷)
When smaller than specified value	Counterclockwise direction (↶)

Table. 10-1.

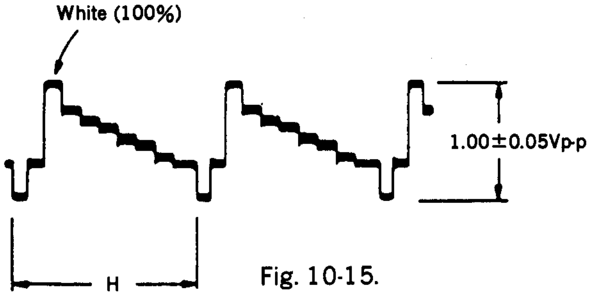


Fig. 10-15.

10-5-9. REC Y FM Level Adjustment (VA-67P Board)

Mode	REC
Signal	Non-signal
Measurement point	CN507 pin ⑤
Measuring instrument	Oscilloscope (20MHz bandwidth ON)
Adjustment element	RV101
Specified value	205±10mVp-p

[Adjustment Method]

1) Adjust to 205±10mVp-p with RV101.

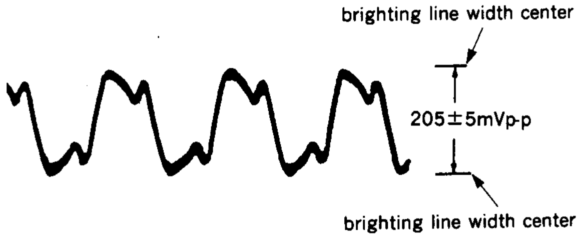


Fig. 10-16.

10-5-10. Chroma Emphasis Adjustment (VA-67P Board)

Mode	REC
Signal	Color bar
Measurement point	IC203 pin ㉔
Measuring instrument	Oscilloscope
Adjustment element	FL302
Specified value	Minimum red level

[Connection]

1) Short between IC203 pin ㉔ and GND at 3.3kΩ resistance.

[Adjustment Method]

1) Minimize the red level with FL302.
2) After the Adjustment, open between IC203 pin ㉔ and GND.

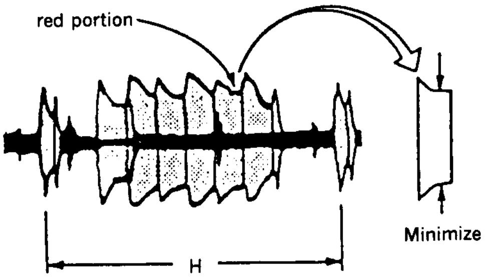


Fig. 10-17.

10-5-11. HUE Phase Deviation Adjustment (VA-67P Board) (Use a Vectorscope)

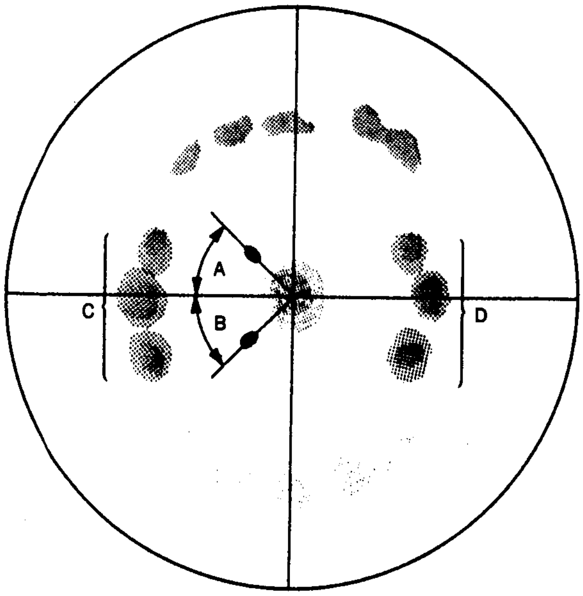
Mode	Playback+Pause
Signal	Alignment tape for operation check (WR5-5CSP), Color bar portion
Measurement point	J201 (VIDEO OUT)
Measurement equipment	Vectorscope
Adjustment element	RV353 (FSC) RV351 (APC LPF)
Specified value	See Fig. 10-18.

[Connection]

1) Input 4.43MHz signal from Pin ⑫ of IC203 to 1CH of an oscilloscope.
2) Connect 1CH output of an oscilloscope to the EXT. subcarrier reference input of a vectorscope.
3) Put on the EXT. subcarrier switch of a vectorscope.

[Adjustment Method]

1) Adjust with RV353 so as to equalize A and B as shown in Fig. 10-18.
2) Adjust with RV351 so as to minimize the shaking of each three brighting point of C and D.



RV353: A=B
RV351: make C and D a contrast

Fig. 10-18.

10-5-12. REC Chroma Level Adjustment (VA-67P Board)

Mode	REC
Signal	Color bar
Measurement point	CN507 pin ①
Measuring instrument	Oscilloscope
Adjustment element	RV301
Specified value	Red portion level=95±10mVp-p

[Adjustment Method]

1) Adjust the red portion to 95±10mVp-p with RV301.

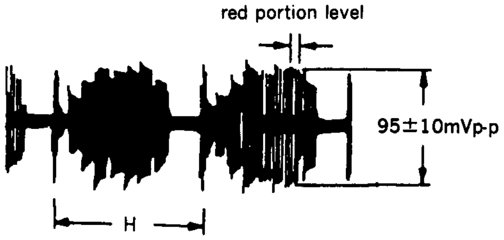


Fig. 10-19.

10-5-13. PB CCD Input Level Adjustment (VA-67P Board)

Mode	Playback
Signal	Alignment tape: Operation check (WR5-5CSP) color bar portion
Measurement point	IC201 pin ㉑
Measuring instrument	Oscilloscope
Adjustment element	RV210
Specified value	500±25mVp-p

[Adjustment Method]

1) Adjust to 500±25mVp-p with RV210.

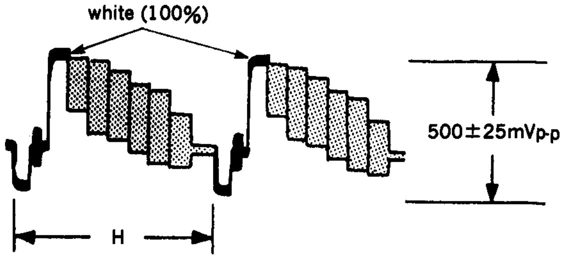


Fig. 10-20.

10-5-14. PB Level Adjustment (VA-67P Board)

Mode	Playback
Signal	Alignment tape : Operation check (WR5-5CSP) color bar portion
Measurement point	J201 (VIDEO OUT terminal)
Measuring instrument	Oscilloscope
Adjustment element	RV203
Specified value	1.00±0.05Vp-p

[Adjustment Method]

1) Adjust to 1.00±0.05Vp-p with RV203.

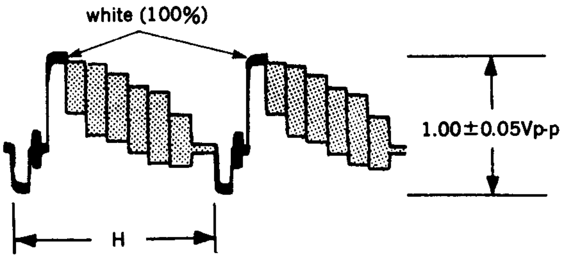


Fig. 10-21.

10-5-15. Character Generator SG Frequency Adjustment (CT-38P Board)

Mode	E-E
Signal	Non-signal
Measurement point	IC902 pin ⑲
Measuring instrument	Oscilloscope Frequency counter
Adjustment element	CT902
Specified value	1562500±100Hz

[Adjustment Method]

1) Adjust to 1562500±100Hz with CT902.

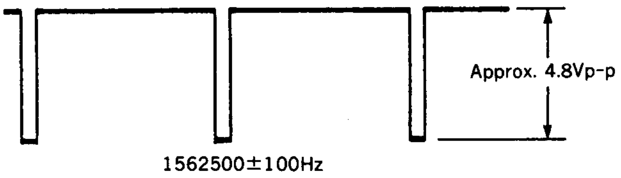


Fig. 10-22.

10-5-16. DDS Character Position Adjustment (CT-38P Board)

Mode	E-E
Signal	Color bar
Measurement point	EVF
Measuring instrument	EVF
Adjustmen element	CT901
Specified value	Refer to Fig. 10-23.

[Adjustment Method]

1) Turn on the DATA SCREEN switch (VK-14P board S508). (Check that it is displayed on the EVF.)
2) Adjust the last inner line to the dividing line between red and blue with CT901. (Refer to Fig. 10-23)
3) Turn off the DATA SCREEN switch (VK-14P board S508). (Check that it went out on the EVF.)

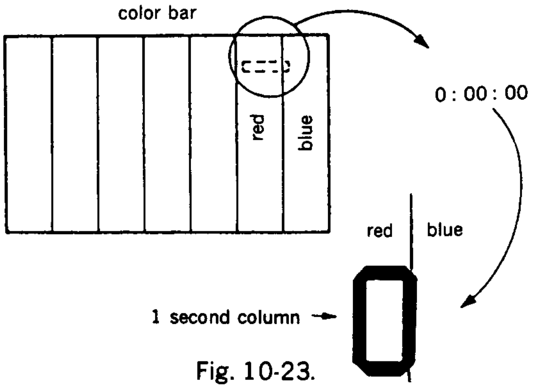


Fig. 10-23.

10-6. AUDIO SYSTEM ADJUSTMENT

- Perform adjustment with the color bar signal used as the video input signal.

[Connection of audio measuring instrument]

In addition to the video system measuring instruments, connect the audio system measuring instruments as shown in the figure below, and set the power switch to the video position for adjustment.

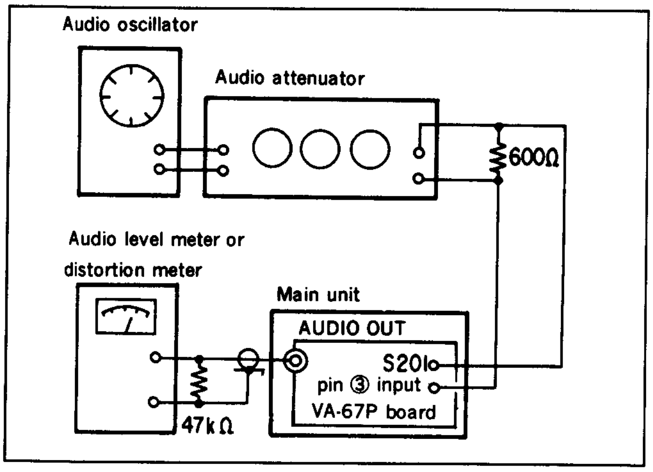
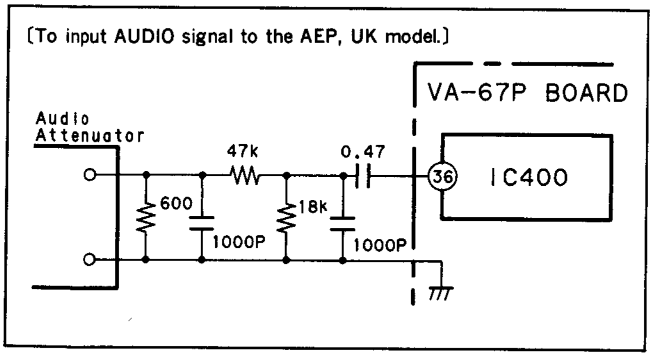

Audio oscillator
Audio attenuator
600Ω
Audio level meter or distortion meter
Main unit
AUDIO OUT
S201
pin ③ input
VA-67P board
47kΩ

Fig. 10-24.



[To input AUDIO signal to the AEP, UK model.]

VA-67P BOARD
Audio Attenuator
47k
0.47
600
18k
1000P
1000P
36
IC400

Fig. 10-25.

10-6-1. AFM Carrier Frequency Check (VA-67P Board)

Mode	REC
Signal	Non-signal
Measurement point	IC400 pin ⑧
Measuring instrument	Frequency counter
Specified value	1.500±0.002MHz

Note : Connect the frequency counter through a buffer amplifier (oscilloscope, etc.) having high impedance and low capacitance.

[Checking Method]

1) Turn OFF the audio oscillator output.
2) Confirm that the AFM carrier frequency is 1.500 ±0.002MHz.

10-6-2. REC AFM Carrier Level Check (VA-67P Board)

Mode	REC
Signal	Non-signal
Measurement point	CN507 pin ②
Measuring instrument	Oscilloscope
Specified value	70±5mVp-p

[Checking Method]

1) Confirm that the level is 70±5mVp-p.

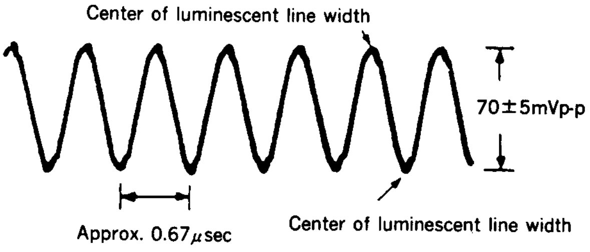

Center of luminescent line width
70±5mVp-p
Approx. 0.67μsec
Center of luminescent line width

Fig. 10-26.

10-6-3. IR Adjustment (VA-67P Board)

Mode	Playback
Signal	Alignment tape : Operation checking (WR5-5CSP)
Measurement point	IC400 pin ④
Measuring instrument	Oscilloscope
Adjustment element	RV400
Specified value	Refer to Fig. 10-27.

[Preparation]

1) Short between IC400 pin ④ and GND at 4.7kΩ resistance.

[Adjustment Method]

1) As shown in Fig. 10-27, adjust RV400.
2) After the adjustment, open between IC400 pin ④ and GND.

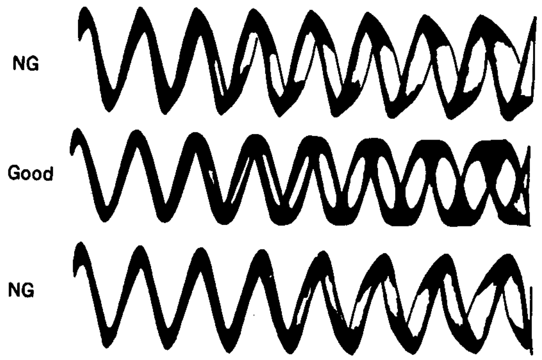


Fig. 10-27.

10-6-4. Deviation Adjustment

Mode	Playback
Signal	Alignment tape: Operation checking (WR5-5CSP)
Measurement point	Audio output terminal
Measuring instrument	Audio level meter
Adjustment element	RV401
Specified value	−7.5±1.0dBs

[Adjustment Method]

1) Adjust to −7.5±1.0dBs with RV401.

10-6-5. E-E Output Level Check

Mode	E-E
Signal	400Hz, −7.5dBs
Measurement point	Audio output terminal
Measuring instrument	Audio level meter
Specified value	−7.5±2dBs

[Checking Method]

1) Make sure that the audio output level is −7.5±2dBs.

10-6-6. Overall Level Check

Mode	Self-recording and playback
Signal	400Hz, −7.5dBs.
Measuremrnt point	Audio output terminal
Measuring instrument	Audio level meter
Specified value	−7.5±2dBs.

[Checking Method]

1) Record the signal.
2) Playback the recorded section
3) Make sure that the audio output level is −7.5±2dBs.

10-6-7. Overall Frequency Characteristics Check

Mode	Self-recording and playback
Signal	Ⓐ 400Hz, −17.5dBs Ⓑ 30Hz, −17.5dBs Ⓒ 10Hz, −17.5dBs
Measurement point	Audio output termial
Measuring instrument	Audio level meter
Specified value	With the 400Hz playback output level as 0dB, the playback output level of 30Hz and 10kHz is 0±3dB

[Checking Method]

1) Record signal Ⓐ through Ⓒ in order.
2) Playback the recorded sections.
3) With the 400Hz playback output level as 0dB, confirm that the playback output level of 30Hz and 10kHz is 0± 3dB.

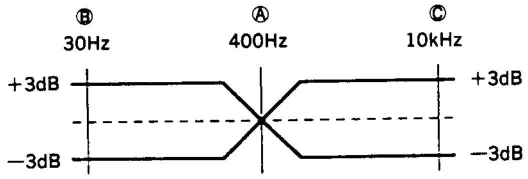


Fig. 10-28.

10-6-8. Overall Distortion Check

Mode	Self recording and playback
Signal	400Hz, −7.5dBs
Measurement point	Audio output terminal
Measuring instrument	Distorsion meter
Specified value	Less than 0.8%[*1]

[Checking Method]

1) Record the signal.
2) Playback the recorded section.
3) Confirm that the distortion is less than 0.8%.[*1]

* 1 Value when 200Hz to 3kHz BPF is used.

10-6-9. Overall Noise Level Check

Mode	Self-recording and playback
Signal	No signal (Short between input point and GND with a jumper wire.)
Measurement point	Audio output terminal
Measuring instrument	Audio level meter
Specified value	Less than −62.0dBs[*2]

[Checking Method]

1) Record the signal
2) Playback the recorded section
3) Make sure that the noise level is less than −62.0dBs.[*2]

* 2 Value when IHF-A hearing correction filter is used.

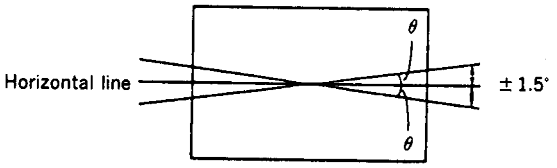
10-7. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENT (A TYPE) (VF-27 BOARD)

10-7-1. Horizontal Tilt Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Specified value	See Fig. 10-29

[Adjustment Method]

1) By turning RV904 (BRIGHT), adjust for a luminance level which provides appropriate visibility of the CRT screen.
2) Loosen the DY (deflection yoke) tightening nut.
3) Make the image horizontal by rotating DY.
4) Retighten the DY tightening nut. (Do not tighten excessively.)


θ
Horizontal line
±1.5°
θ

Specified value : Image orientation within ±1.5° of horizontal line.

Fig. 10-29.

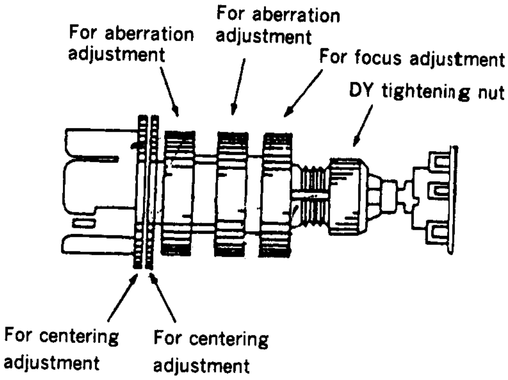

For aberration adjustment
For aberration adjustment
For focus adjustment
DY tightening nut
For centering adjustment
For centering adjustment

Fig. 10-30.

10-7-2. Centering Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Specified value	See Fig. 10-31.

[Adjustment Method]

1) Turn the centering adjustment rings to provide an image with even night, left, upper and lower margins. (See Fig. 10-30.)

Note : Since the centering position is affected by the earth magnetism, turn the equipment over 360° horizontally, and make adjustments at the orientation which exhibits median displacements of the image.

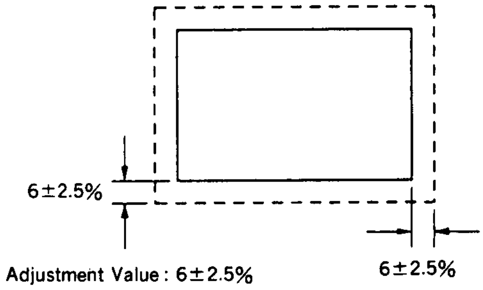


Fig. 10-31.

10-7-3. Focus Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion

[Adjustment Method]

1) Adjust for optimum focus using the focus ring. (See Fig. 10-30.)

10-7-4. Aberration Adjustment

Mode	E-E
Signal	Dot pattern
Specified value	See Fig. 10-32.

[Adjustment Method]

1) Use the aberration adjustment rings to adjust any trailing dots to within 2 times the dot diameter and any fan shaped aberrations to within the dot diameter.
2) If off center, repeat the Centering Adjustment.

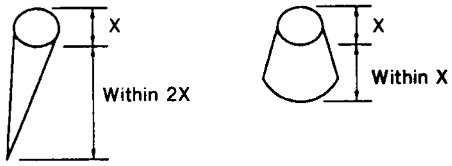


Fig. 10-32.

10-7-5. Horizontal Oscillation Frequency Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP)
Measurement point	CN904 pin ⑤
Measuring instrument	Digital voltmeter or oscilloscope (DC range)
Adjustment element	RV901
Specified value	$2.60 \pm 0.05V_{DC}$

[Adjustment Method]

1) Adjust to $2.60 \pm 0.05V_{DC}$ using RV901.

10-7-6. Horizontal Amplitude Adjustment

Mode	Playback
Signal	Alignment tape for cheking operation (WR5-5CSP) Monoscope portion
Adjustment element	C911
Specified value	6.0±3.0%

[Adjustment Method]

1) Line up the upper and lower sections of the monoscope image with the upper and lower edges of the screen by rotating RV902.
2) Rotate RV904 to set the brightness to the normal level.
3) Short or open the pattern (A) of the H size adjustment capacitor (C911) to provide horizontal overscans of 6.0±3.0% (total of left and right).
(See Fig. 10-34.)

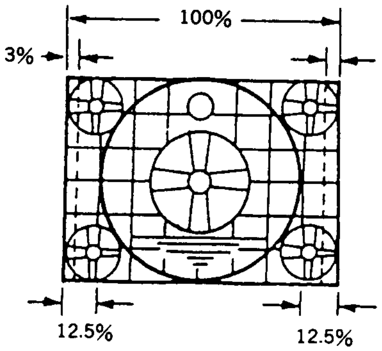
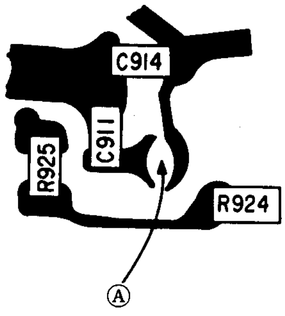


Fig. 10-33.



VF-27 Board
(conductor side)

A section	H size
Open	Large
Short	Small

Fig. 10-34.

10-7-7. Vertical Amplitude Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Adjustment element	RV902
Specified value	6.0±3.0%

[Adjustment Method]

1) By turning RV902, adjust vertical overscan to 6.0±3.0% (upper and lower total).

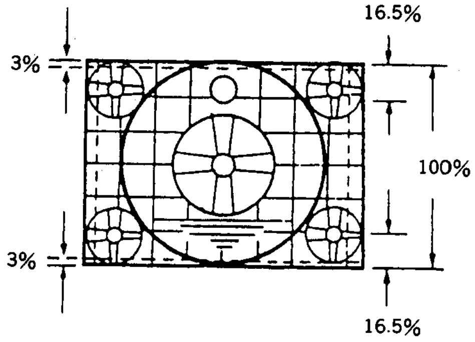


Fig. 10-35.

10-7-8. Brightness, Contrast Adjustments

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Adjustment element	Brightness : RV904 Contrast : RV903

[Adjustment Method]

1) Perform brightness and contrast adjustments alternately until the bright and dark areas of a gray scale are displayed correctly. (The bright areas should not be made too bright to avoid a fuzzy display of the cross-hatches in the monoscope circle, and the brightness of the dark areas should be such that discrimination between the darkest and second darkest area is possible.)

10-7-9. Horizontal Amplitude, Vertical Amplitude and Focus Checks

Values should conform to specifications given in 10-7-6. Horizontal Amplitude Adjustment and 10-7-7. Vertical Amplitude Adjustment. If not. readjust accordingly, and repeat 10-7-8. Brightness, Contrast Adjustments. In this case, focus needs to be checked. If the image is not clear, perform 10-7-3. Focus Adjustment and 10-7-4. Aberration Adjustment.

10-8. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENT (B TYPE) (VF-26 BOARD)

10-8-1. Horizontal Tilt Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Specified value	See Fig. 10-37.

[Adjustment Method]

1) Adjust the volume array Ⓓ (BRIGHT) for appropriate brightness on CRT screen. (See Fig. 10-38.)
2) Loosen the DY (deflection yoke) tightening nut. (See Fig. 10-36.)
3) Make a picture horizontal by turning the DY.
4) Retighten the nut. (Do not tighten excessively.)

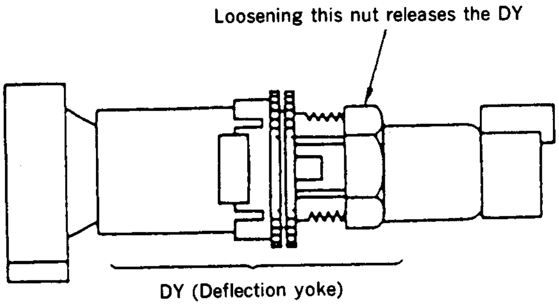
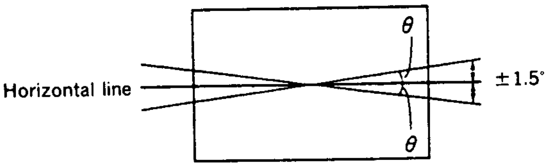

Loosening this nut releases the DY
DY (Deflection yoke)

Fig. 10-36.


θ
Horizontal line
±1.5°
θ

Specified value: Image orientation within±1.5° of horizontal line.

Fig. 10-37.

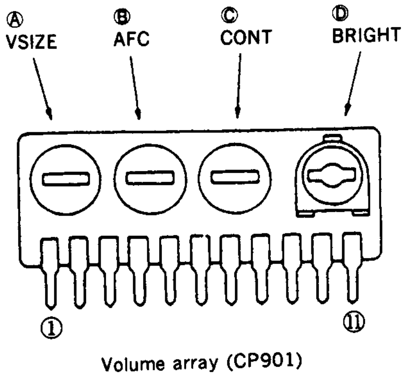

Ⓐ VSIZE
Ⓑ AFC
Ⓒ CONT
Ⓓ BRIGHT
①
⑪
Volume array (CP901)

Fig. 10-38.

10-8-2. Centering Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Specified value	See Fig. 10-40.

[Adjustment Method]

1) Turn the centering adjustment rings to provide an image with even right, left, upper and lower margins. (See Fig. 10-39.)

Note: Since the cenering position is affected by the earth magnetism, turn the equipment over 360° horizontally, and make adjustments at the orientation which exhibits median displacements of the image.

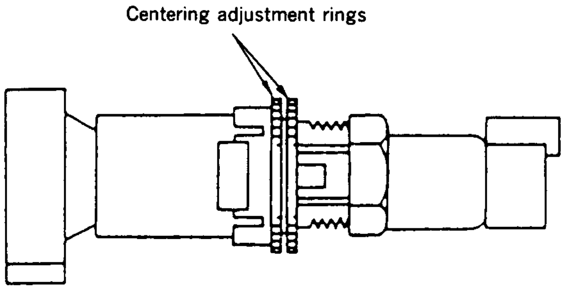
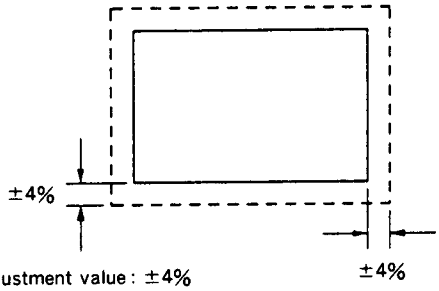

Centering adjustment rings

Fig. 10-39.



Adjustment value: ±4%

Fig. 10-40.

10-8-3. AFC Adjustment

Mode	E-E or Camera standby
Signal	Color bar
Measurement Point	C915 ⊕ side
Measuring instrument	Digital voltmeter or oscilloscope (DC range)
Adjustment element	Volume array Ⓑ (AFC)
Specified value	$2.6 \pm 0.1V_{DC}$

[Adjustment Method]

1) Adjust volume array Ⓑ (AFC) for $2.6 \pm 0.1V_{DC}$. (See Fig. 10-38.)

10-8-4. Horizontal Amplitude Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Adjustment element	C905
Specified value	6.0±3.0%

[Adjustment Method]

1) Line up the upper and lower section of monoscope image with the upper and lower edges of the screen by rotating volume array Ⓐ (V SIZE). (See Fig. 10-38.)
2) Rotate volume array Ⓓ (BRIGHT) to set the brightness to the normal level.
3) Short or open the pattern $\boxed{A}$ of the H size adjustment capacitor (C905) to provide horizontal overscans of 6.0± 3.0% (total of left and right). (See Fig. 10-42.)

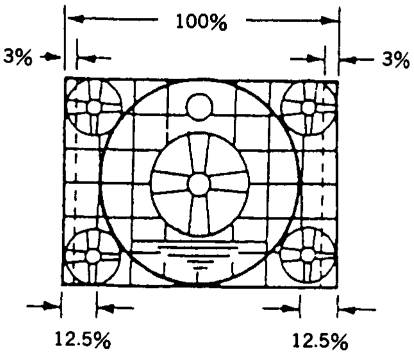
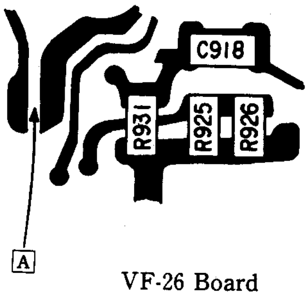


Fig. 10-41.



VF-26 Board (conductor side)

A section	H size
Open	Large
Short	Small

Fig. 10-42.

10-8-5. Vertical Amplitude Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Adjustment element	Volume array Ⓐ (V SIZE)
Specified value	6.0±3.0%

[Adjustment Method]

1) By turning volume array Ⓐ (V SIZE), adjust vertical overscan to 6.0±3.0% (upper and lower total). (See Fig. 10-43.)

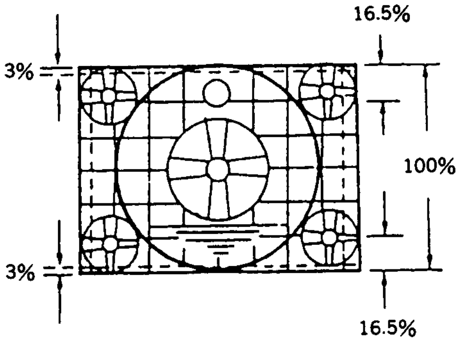


Fig. 10-43.

10-8-6. Focus Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Adjustment element	RV901

[Adjustment Method]

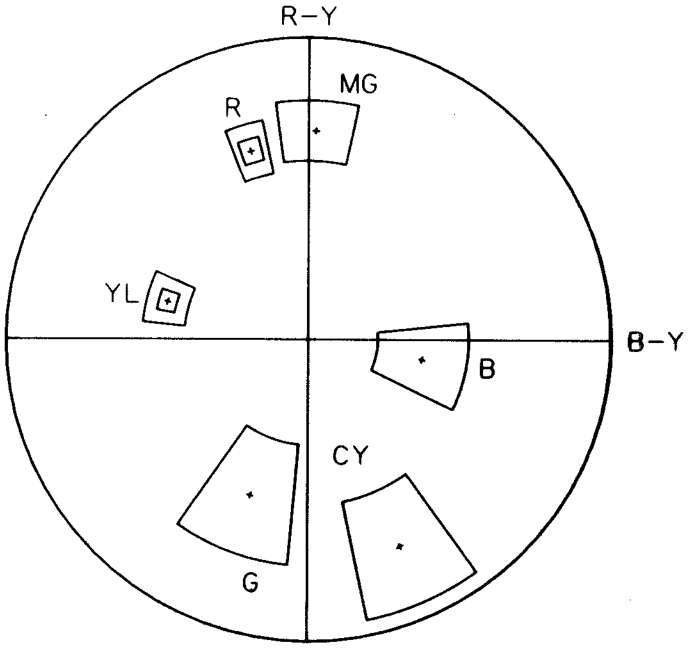
1) Adjust to the best focus point with RV901.

10-8-7. Brightness, Contrast Adjustments

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Adjustment element	Brightness : Volume array Ⓓ (BRIGHT) Contrast : Volume array Ⓒ (CONT)

[Adjustment Method]

1) Adjust volume array Ⓓ (BRIGHT) and Ⓒ (CONT) alternately until the bright and dark areas of a gray scale are displayed correctly. (The bright areas should not be made too bright to avoid a fuzzy display of the cross-hatches in the monoscope circle, and the brightness of the dark areas should be such that discrimination between the darkest and second darkest areas is possible.) (See Fig. 10-38.)

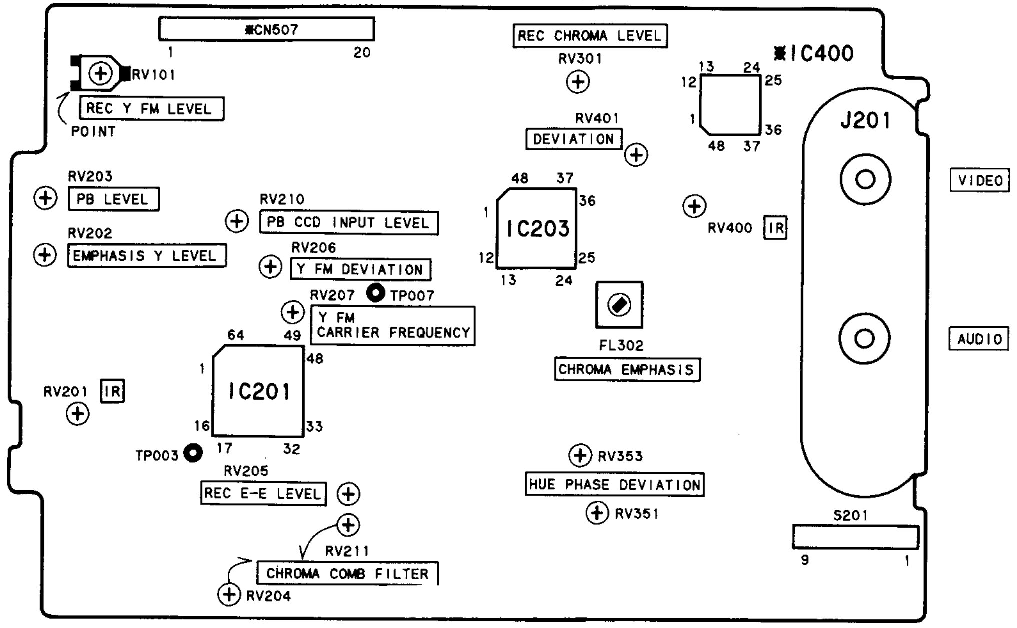

R-Y
MG
R
YL
B-Y
B
CY
G

For Vectorscope

CCD-F375E

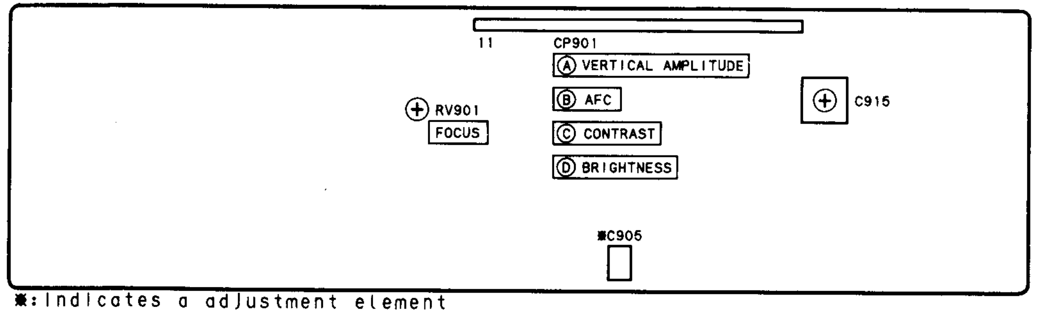
10-9. ADJUSTING PART LOCATION DIAGRAM

VA-67P BOARD (COMPONENT SIDE)


*CN507
1
20
REC CHROMA LEVEL
RV301
*IC400
RV101
REC Y FM LEVEL
POINT
RV401
DEVIATION
J201
RV203
PB LEVEL
RV210
PB CCD INPUT LEVEL
IC203
RV400
IR
VIDEO
RV202
EMPHASIS Y LEVEL
RV206
Y FM DEVIATION
RV207
TP007
Y FM CARRIER FREQUENCY
FL302
CHROMA EMPHASIS
AUDIO
RV201
IR
IC201
TP003
RV205
REC E-E LEVEL
RV353
HUE PHASE DEVIATION
RV351
S201
RV211
CHROMA COMB FILTER
RV204

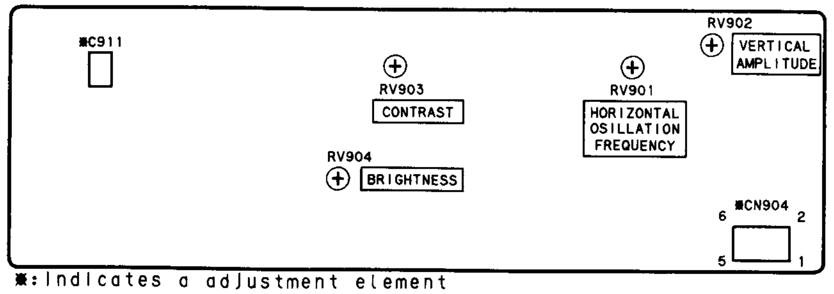
*: Indicates a adjustment element mounted on the conductor side.

VF-26 BOARD (COMPONENT SIDE)


CP901
Ⓐ VERTICAL AMPLITUDE
Ⓑ AFC
Ⓒ CONTRAST
Ⓓ BRIGHTNESS
RV901
FOCUS
C915
*C905

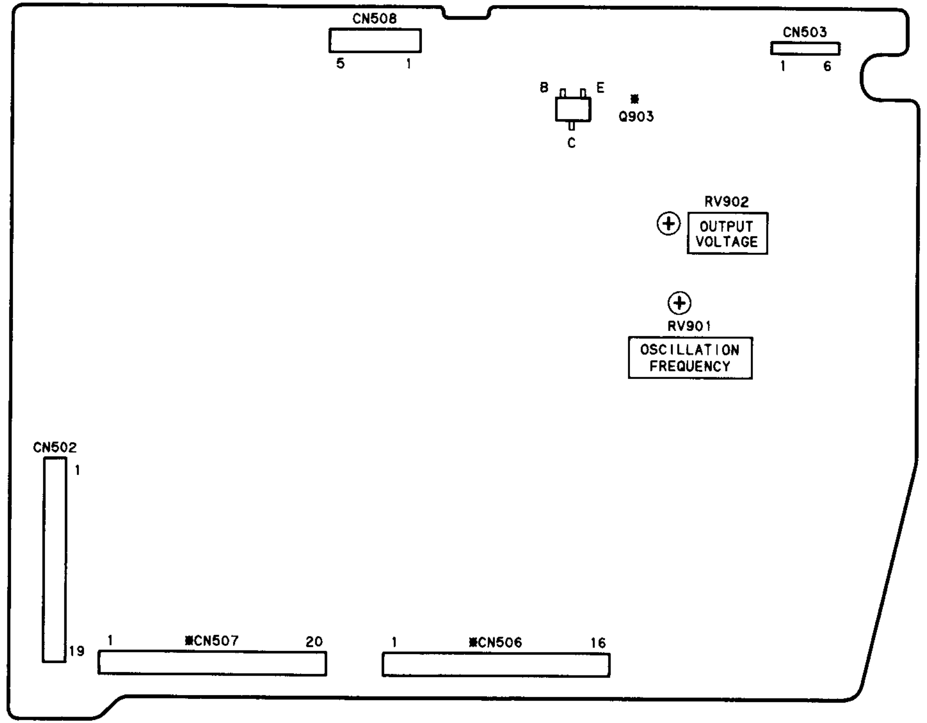
*: Indicates a adjustment element mounted on the conductor side.

VF-27 BOARD (COMPONENT SIDE)


*C911
RV903
CONTRAST
RV901
HORIZONTAL OSILLATION FREQUENCY
RV902
VERTICAL AMPLITUDE
RV904
BRIGHTNESS
*CN904

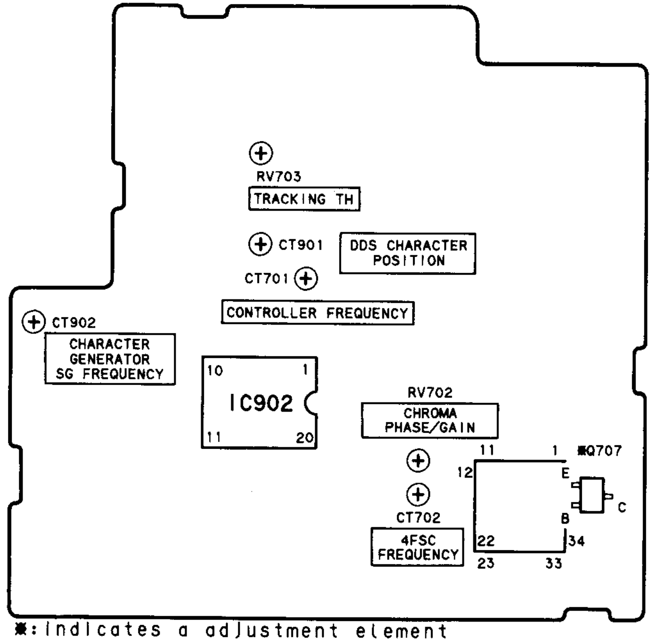
*: Indicates a adjustment element mounted on the conductor side.

SS-136P BOARD (COMPONENT SIDE)


CN508
CN503
*Q903
RV902
OUTPUT VOLTAGE
RV901
OSCILLATION FREQUENCY
CN502
*CN507
*CN506

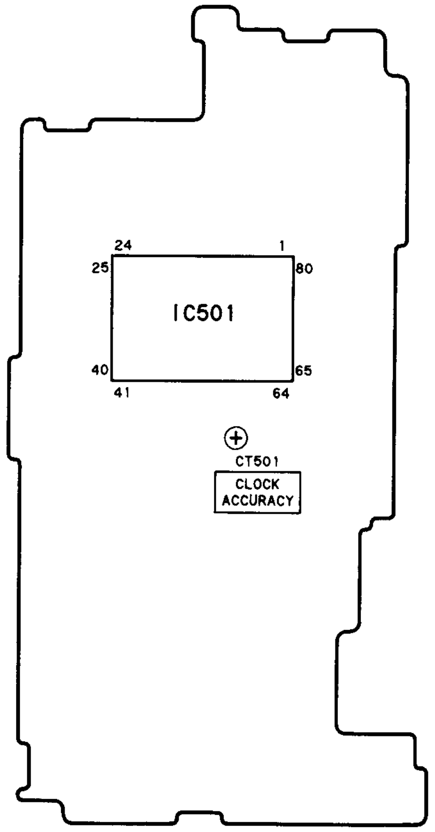
*: Indicates a adjustment element mounted on the conductor side.

CT-38P BOARD (COMPONENT SIDE)


RV703
TRACKING TH
CT901
DDS CHARACTER POSITION
CT701
CONTROLLER FREQUENCY
CT902
CHARACTER GENERATOR SG FREQUENCY
IC902
RV702
CHROMA PHASE/GAIN
*Q707
CT702
4FSC FREQUENCY

*: Indicates a adjustment element mounted on the conductor side.

FU-100P BOARD (COMPONENT SIDE)


IC501
CT501
CLOCK ACCURACY